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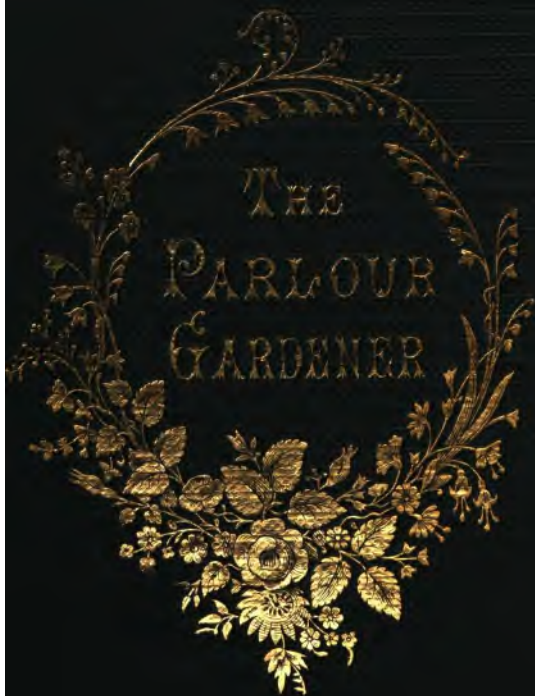
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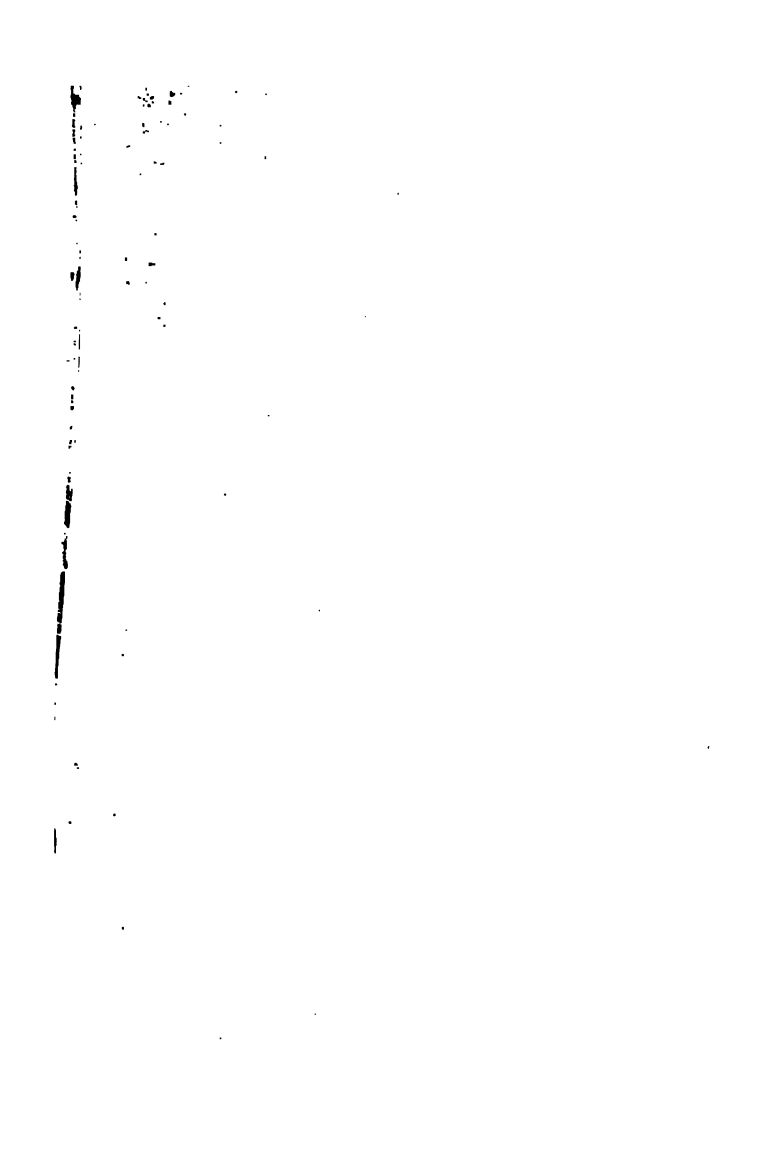
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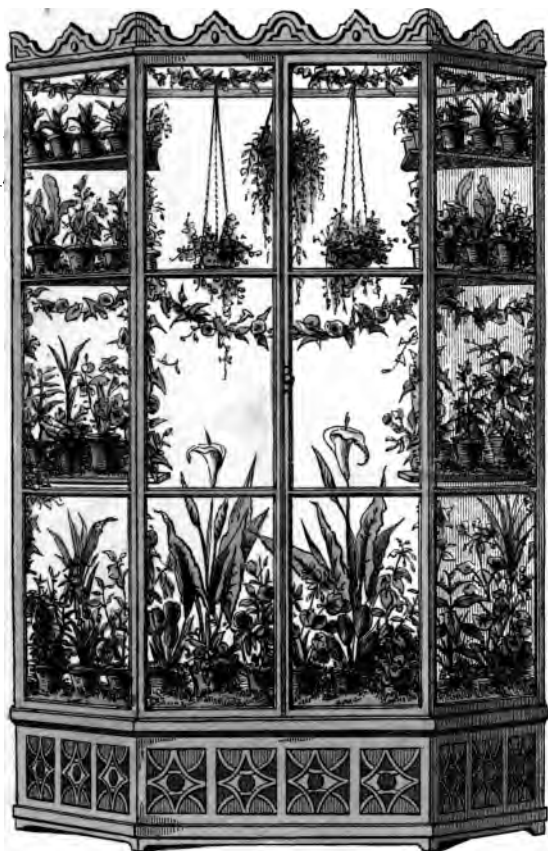
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THE
PARLOUR
&
GARDENER









THE PLANT CASE IN THE WINDOW.

THE
PARLOUR GARDENER:

A Practical Treatise

ON THE
HOUSE CULTIVATION OF ORNAMENTAL
PLANTS.

LONDON:
SAMPSON LOW, SON, & CO.,
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T. RICHARDS, 37, GREAT QUEEN STREET.



P R E F A C E.

CONSIDERABLE attention is just now being drawn to the cultivation of ornamental plants in dwelling houses. Would that a mere perusal of these pages could insure to everyone an in-door display of floral beauty. Books, however, are intended only to supply information, and each reader for himself must select, modify, and act upon such portions as his judgment may dictate to be suitable to his particular requirements; and should not either adopt or reject everything without discrimination and reflection.

The writer of these pages has had considerable experience in the study and practice of floriculture, and this under circumstances which have

been favourable to the special subjects now treated. The instructions given are alike adapted for town and country practice. They are, it is hoped, sufficiently simple and practical to be suitable to the owner of half a dozen plants, while they are equally adapted to the requirements of larger domains; and might even be extended to the management of a small conservatory, which is merely a larger window, embracing more favourable appliances.

The difficulty met with, even in writing a book like the present, is considerable, and has been truly described recently, by one who has had large experience. The Editor of the *Chronicle* says,—“If there is one kind of book with which readers are more apt to be dissatisfied than another, it is one upon gardening. So many different kinds of plants are in cultivation, and so many different tastes and objects prevail amongst cultivators, that to attempt to satisfy all inquirers is as hope-

less as the task of Sisiphus." It would be impossible for us to embrace each and every plant which might possibly be grown in the dwelling room. The already numerous list might have been considerably extended; nay, we might go so far as to anticipate that each of the three thousand six hundred windows in Somerset House might be occupied with a stand or plant case, and tenanted with floral subjects, almost all of which would differ. Such only, however, as are best adapted have been enumerated and described.

We would now add this general remark:—Whatever you do, do it well. A single specimen, well grown and kept nicely, is worth a score of others weak and spindly; while experience in the cultivation of one subject will lead you to efficiency in others.

We would, in conclusion, hope that these pages, like others previously offered, may be kindly appreciated by our readers, and, thanking

them for the long continued proofs we have had of their past kindness, we wish their way may be as thickly strewn with real flowers as ours in this little volume has been with described ones; and that in health and honour they may enjoy the various Edens their Adamic instincts for beauty may lead them to plant and tend, and that we may continue to keep them company therein.

We have endeavoured to make everything perfectly understood. Should, however, any point of difficulty arise, we shall be only too happy to give our advice, or to receive suggestions; and a line addressed to the *Parlour Gardener* shall have our best attention.

November 10th, 1862.

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THE PARLOUR GARDENER.

CHAPTER I.

The Growth of Cities and the Growth of Flowers.

As from the most unsightly and unsavory materials the chemist extracts his most superb colours, and the perfumer distils his most coveted scents, so the mind with a love for the beautiful, the true, and the good, finds in the most unfavourable conditions scintillæ to delight it, and germs on which it may feed and grow. Nor is this to be wondered at, seeing that the love of the beautiful is the love of God, and the growth of the good from decay is the process by which God evinces, and foreshadows a higher and better purpose than that of mere repetition of life and death.

The reflection is not new, however the illustration be made or the words arranged, for we know it to be as old as the Bible, if not very much older. Still we

cannot help making it again, and yet again, when, in the midst of our miles upon miles of staring brick and stone houses which constitute our great towns, we come upon here and there attempts at arrangement of Window Plants and at Parlour Gardening.

Assuredly the first Great Gardener, when he made a garden in Eden, planned it not for His own delight, but as a solace to that pair who were to dwell in it; and we, really believing that there is nothing more delightful, more refreshing, more soul-inspiring than a well-ordered garden, have so far taken to heart His lesson, that we have not yet been able to find a better term for a future life than that good old Eastern word *Paradise*.*

Unfortunately, the progress of material wealth and the love of money tempt to the destruction of gardens for the gain of building space, and the congregating of thousands; and the exigencies of life lead to the contamination of the air, so unfavourable to the growth of leaves and flowers, those lovely children of the down and dell, the forest and the mountain, the heath and the moor. To denounce or to fret, to preach or to legislate, is of little avail, however much might be said in

* *Paradise*, from *Parādēsa* (Sanskrit), a garden, park, or pleasure ground well watered and planted. From the Sanscrit come the Hebrew, the Persian, and all the varied forms of the word in the Indo-Germanic tongues.

favour, or enacted in aid, of gardens. Years ago, long before our great-grandparents were born, when the Strand had its gardens, when Holborn could boast of its bees and its honey, and when Field Lane, the sink of squalidness, vice and woe, was famed for its Strawberries, laws were passed to stop the further growth of London, and to prevent the contamination of its atmosphere. But it availed not; London expanded, swallowing up fields and flowers, trees and meadows, parks and pastures, green lanes and breezy downs; and other manufacturing cities became like it, till all the great nuclei of trade passed into cities of smoke, of carbonic acid gas and sulphuretted hydrogen: the only wonder being that where trees and flowers withered and died, there human beings could and would live, marry and have children, and *try to obey* the laws of God and man.

We speak of London only, because London is the great offender; not because she is in a worse condition in respect to health than many other large towns, and towns in our own land too. Indeed, considering she is nearly* the most populous city on the face of the globe, her depuratory arrangements are very high. For all this, though she has not seen the plague for just two

* Peking is said to contain five millions of inhabitants, but of this there is some doubt.

centuries, it is not so much her improved sanitary laws which have saved her, as the different forms which diseases have taken—diseases in many instances of a low type, yet none the less obnoxious to health and to life. Fevers—spotted, gastric, and even yellow,—cholera, diarrhoea, miasma of various kinds, have swept, and do now snatch away, some of the most useful as well as the most tender from the scenes of their labours and their love.

To the true lover of flowers it is the *life displayed* in them which he loves as much as the dazzling splendour of their appearance when in bloom. The feelings engendered by observing the tender green of the plantlet as it raises itself above the soil, and spreads into leaves—or by contemplating the frond of the fern as it rises like a bishop's crosier, and expands into feathered being—or by noting the dicotyledons lifting up their capsuled heads into the light—can only be excelled by those of the mother as she watches her offspring—life of her life, almost soul of her soul—laugh and play and grow into manhood or womanhood, a pleasure to look at and a result to be proud of.

Flowers are like children ; in order to bring them up well, we must love them. The pleasure of providing for

their wants will be as agreeable as that of seeing them flower. Their bloom will be the fruit of our own labour; it will have been merited by the act of cultivating them. They will have for us a hundred times the value that the most beautiful plants would have which are bought in bloom and which again in their turn are replaced by others without our having assisted in their production.

Now, this is the kind of gardening which we wish to see more fully extended in the foot or two of earth sarcastically named a *yard* which lies in the rear of our town dwellings, as well as in the windows of the sitting room, and in the bed-rooms of our invalids.* A species of flower and plant growing that costs little money, time, or trouble, but which draws away the mind from those life-corroding cares that the exigencies of modern life inflict upon all city dwellers, and relieve the eye and the brain at the same time, so long doomed to

* The folly and ignorance which reign too often supreme over the sick room cannot be better exemplified than by this:—while the nurse will leave the patient stewing in a corrupting atmosphere, the best ingredient of which is carbonic acid, she will deny him, on the plea of unhealthiness, a glass of cut flowers or a growing plant. Now, no one ever saw "overcrowding" by plants in a room or ward; and the carbonic acid they give off at night would not poison a fly. Nay in overcrowded rooms, they actually absorb carbonic acid, and give off oxygen. Cut flowers, also, decompose water, and produce oxygen gas. (Florence Nightingale in *Notes on Nursing*, p. 84.)

gaze at white ledgers, glaring red walls, and dingy edifices.

True there are private squares, national arboretums, and public gardens and parks, which in one or two instances are imperial in their appointments; but lying far apart, are not to be visited save at long intervals—intervals too distant for home enjoyment; while the London square has, as a great wit once observed, “too much of the pent-up smell clinging to it.”

As space for living, play, and limb-growth, and the partial depuration of the atmosphere, they are of inestimable benefit, but they cannot enter into our every-day life—they are like the Fairchild lecture,* too seldom preached, and too inconvenient for the many to avail themselves of.

Gervase Markham, in his “English Husbandman,” says, “a garden is so profitable, necessary, and such an ornament and grace to every house and housekeeper,

* This Garden Sermon is preached every Whit Tuesday, at St. Leonard's, Shoreditch, “On the wonderful Works of God in the Creation; or on the certainty of the resurrection of the dead proved by the certain changes of the animal and vegetable parts of creation,” and though so full in title, was intended more especially to show the lesson to be learnt from observing the effects of the changes of the season on plants. It is partly paid for from funds left by a Thomas Fairchild, author of the “City Gardener,” who lived at the Ivy Gardens, and had a vineyard at Hoxton.

that the dwelling-place is lamed and maimed if it want that goodly limb and beauty."

But this was written more than two hundred years since, when every city Company *had* a garden ; not a little pent-up court, as now, where the shrubs by the greatest care can scarcely be kept alive, and only by perpetual renewal from the markets can they produce a flower : when the Inns of Court had avenues of Limes, Chestnuts, Elms, and Planes. Even these have been cruelly curtailed, but not so much as to prevent their exhibiting a little greenery in summer and a few flowers in autumn.

Time is the great avenger. London has gone to the end of her tether, we believe, in sanitary mismanagement. In 1849 she had above 10,000 deaths from cholera in three months ; since then she has begun the main drainage, and in a few years will convert the great Thames sewer into a river again, fit for fish to live in and for people to walk by to enjoy the fresh breezes ; she has stopped the belching of her high furnace chimneys, and has made her steampackets consume their own smoke ; she has filtered her drinking waters, and has made new parks, and begun to lay others out with taste ; but for private gardens she has not, and never will have, room ; and they who from business or want of means are preclu-

ded from possessing a garden in the suburbs, must cover their back-yards with glass, or rear up their flowers in their rooms. Of cultivating under glass at present we know very little—it is, comparatively, a new art; but we have learnt sufficient to enable us to make to grow, and to blow, flowers which, years ago, were neither known nor grown.

For business we go to the ends of the earth—we quarrel with China, we coerce Japan—but from these distant regions we bring more than goods. China lays claim to being the mother of gardens and gardening, and truly she had the art, now carried to perfection in Japan, of growing Oak or Elm, Larch or Beech, Fir or Willow, with every appearance of age, and of any size; from two feet high, with leaves, and flowers, and seed, to a hundred feet and more, and with shade for a regiment of soldiers. Alike the sun, life and heat, letters and religion, civilization and gardening, come from the East, and travel westerly. If China did not teach Babylon gardening, she was coeval with that long-defunct empire. Persia taught Greece—Greece carried the art to Rome—and Rome brought it to England. But flower-gardening, properly speaking, did not commence until the Tulipomania in Holland, when the turban-headed flower, in many instances, fetched its weight in diamonds.

For flower-gardening is not merely transplantation—it is the production of rarity and the development of bloom under every possibility of form and untoward circumstances. Years ago, to maintain that Ferns would grow in air-tight cases, or to attempt to cultivate plants in close rooms would have been laughed at by gardeners; but observation and experiment have made both plans triumph, and sufficient laws have been discovered and rules laid down, to lead to success by any one who will spare a little time for the essay. But there is much to resolve; those who begin as learners may end as discoverers.

Nor is the cultivation of plants in close rooms injurious to health; for by the laws of compensation, plants imbibe what animals reject (carbonic acid), giving out in return what is the soul of life to the latter (oxygen). Only under certain conditions are they injurious, such as when in ill health and decay, and to some extent during the hours of darkness; but then do not equal gas-burners, lamps, and candles, which take away the oxygen and give nothing in return but soot, carbonic acid, and sulphuretted hydrogen.

There is the possibility, mayhap the probability, of London and other large cities being again planted with trees, or their house-walls being covered with Peach,

Apricot, and the flowering *Wisteria Sinensis*—of Cherries growing in Shoe Lane,* Apples† in Paternoster Row, Pears on Tower Hill,‡ and Strawberries in Ely Place;§ but of private gardens to London houses there will be none until London is no more. Those who by business are precluded from availing themselves of the villas built alongside of the railways must have their garden at home, or none at all; for before the century is out, London will have extended east and west, from Barking to Hounslow, and north and south from Southgate to Croydon, and back-yards and fore-courts will vanish as perfectly as have the Roses from Hatton Garden|| and the Vine from Vine Street.

The Druids, with their sacred herbs and flowers, are almost forgotten—the worship of Friga or Freya, the Saxon Goddess of Fertility, is laid aside—the orgies of Flora, the Roman May-Queen and Goddess, have been

* There is now living, in King's Head Court, Shoe Lane, a greengrocer who remembers picking cherries off the tree which grew at the back of his house.

† The Coroners' rolls have accounts of boys killed by stealing them.

‡ There is an order extant of Edward I for pears for Tower Hill.

§ At the request of Richard, Duke of Gloucester, the Bishop of Ely sent for strawberries for him from Ely Place.

|| The Bishop of Ely, when he let this garden to Sir Christopher Hatton, reserved the right of walking in it and gathering twenty bushels of roses yearly.

suppressed—the Maypole has been cut down and preached down—London is little better than a stony plain; yet the love of flowers still exists; that which God has made beautiful no law of man, no wilful perversion of mind can destroy. The infant craves for flowers, children deck each other with them, and woman places them on her bosom and in the sick chamber, perhaps because they are the most innocent and pure of God's children, for she feels deeply, and her feelings often lead her aright when man's reason carries him astray.

The Druids have left their Holly and Mistletoe in the castle and the cottage—the flowers used at the Easter revelries of Friga and Flora have been consecrated to the service of the Church—the Maypole has dwindled to a bouquet in the Lord Chancellor's Court and a dance of the so-called sweeps in the streets; but, whatever may have been the enjoyments of our ancestors at the opening of the season of flowers, we have no reason to envy them, for their flowers, though sweet, were wild and not at all profuse in blossom; whatever was done by them was little more than a replantation from the broad forest or moorland home to the enclosed weedy space in the castle termed a garden. Now, he who loves flowers may have them all the year round, for him the Maypole may blossom every morning, from New Year's Day to the

festival of the Holy Innocents. Chained to the desk by labour, or lashed to the bed by disease, or tied to home by the bonds of love—neither man nor woman needs forego the love of flowers. There are now in England flowers for all seasons, for all tastes, for all temperatures, and by ordinary care and at small expense, anyone desirous of adding to the enjoyments of home the tranquillity, vivacity, and brilliancy of a garden, has it in his power to do so. He has but to follow out the directions of those who have studied the subject as a profession, watch the health of his plants, note their likes and dislikes, and his little home will become to him the Kew of his heart, and the Chatsworth of all his desires, so that it may be said of him as Xenophon said of Cyrus—“Wherever he resides, or whatever place he visits in his dominions, he takes care that his *paradises* shall be filled with all that is beautiful and useful which the soil can produce.”

CHAPTER II,

General Directions.

The difficulties, pleasures, and extent of Parlour Gardening.—Water; Quantity required: Its temperature: General rules for its application.—Warming: Sudden changes to be avoided.—Light.—One-sided plants.—Ventilation.—Stagnant Air.—Rules for opening the window.—Cleaning: Dust: Sponging: Washing.—Respiration of the leaves.—Removal of decayed foliage.

It is not always easy to cultivate ornamental plants in an inhabited room—still, far from complaining of this difficulty, we should, on the contrary, congratulate ourselves, for is it not a great pleasure to attempt a difficult thing, and succeed in doing it? We would not, however, have this remark discourage the beginner; very limited appliances and means, with the ordinary experiences gained in a surprisingly short space of time, will afford much of gratification and of pleasure. To be successful in parlour gardening, nothing is, after all, requisite but care and patience, though much of these is necessary. Persons with leisure will especially find this sort of gardening peculiarly suited to their situation; still, in

saying this, we would again caution those whose time for attention to their favorites may be limited against discouragement ; a few minutes in the morning or evening, as opportunity offers, will not be unrewarded with considerable success.

The extent to which parlour gardening can be carried on, the kinds and variety of plants which it may embrace, the time of the year in which we can occupy ourselves in it with the most pleasure and success, all this varies according to the space we may have at our disposal, and the fitness of the situation for our experiments. We shall take into consideration all these things as they present themselves in the natural course of ordinary life.

Watering.

In order to cultivate plants with success in a room, we must recollect that they have their wants and their enemies, and we must satisfy the one and protect from the other. Plants confined within our dwellings have need, of course, of earth suited to their temperament, but it is easy to procure it. They also require watering, some rarely and sparingly, others often and profusely but it should always be with water of the *same tem-*

perature as that of the earth in which they are placed. This is a very important point, and one upon which most people who have flowers in pots in their chambers are perfectly ignorant. You, ladies, do yourselves like a comfortable degree of warmth ; so, also, do your plants ; and nothing is more agreeable, and at the same time more healthy, to them as to you, than a good temperature within doors, when the cold reigns without. Yet mark what frequently happens : some beautiful *Camellia* (for it is in the case of Winter-flowering plants that this error is most easily committed, although, in a measure, the same remarks are applicable to our Summer favorites) some *Camellia* is your delight. Well, to judge by the profusion of buds with which it is loaded, it promises a splendid bloom in the early months of the year. You have, in the meantime, been enjoined not to fail to water it when required, and this injunction you punctually fulfil. But in what way ? you go to the side-board for the water jug, you find it empty—you at once have it replenished from the tap or the pump, the water of which is of an exceedingly low temperature, and this you pour upon the roots of your favourite *Camellia* ! Suppose some one were to pour icy water upon your feet, would not the shock make you cry out ? Your *Camellia*, though silent does not suffer less. Its sap, that was in

full activity, slackens—stops—and that it may begin to flow again, all the buds drop, one after the other, not a single one can bloom, you are astonished at this, and say “It is not my fault.” In Sir Walter Scott’s *Pirate*, the gardener of the Shetland Isles is surprised that his Apple-trees have frozen. He says as you would say, “It is not my fault, I watered them all winter with warm water.” It is the same error reversed. Remember then, that in watering any plant whatever, cultivated in a pot within a room, the first requisite is, that the water you use be of the *same* temperature as the earth in which the plant grows. If you have occasion to visit a greenhouse you will remark that it always contains a reservoir of water intended to water the plants with—this water, without further trouble, from the circumstance alone of its being previously in the greenhouse, takes the same temperature as the plants and soil in it before it is used; this is an example that must be followed in the ordinary room. In the evening, place in the chamber a vessel containing the quantity of water necessary to water the plants next morning, this water and the earth of the pots will then become of the same temperature.

Having said so much about the temperature of the water to be applied, we will give a few hints as to when and how this application is to be made. One of the

principal criteria to observe, although it is by no means an infallible one, is the number and strength of the leaves of the plant, for in proportion to these should the supply of water be regulated. Be careful never to water until the surface becomes tolerably dry, and then give just sufficient to moisten the whole ball of earth, always using rain water in preference to spring water.

Unfortunately, watering is, in most cases, but imperfectly understood, and consequently, a regular or mechanical system is oftentimes adopted, and from a too eager desire for their welfare, the plants are frequently surfeited and killed, through a misappreciation of their requirements. In summer, when frequent waterings are required, the saucers are filled with water, which overloading the plant with juices, soon engenders a sickly, soft growth, unsuited for the production of flowers or healthy foliage. General rules that can be adopted are :—in winter keep plants not growing fast, rather dry—in spring increase the quantity of liquid, with their activity and the power of the sun, keeping them in a medium state of moisture—in summer water daily, and in the autumn decrease with the light of day and the returning torpidity of the plants, until the dry state of winter is again reached. All this resolves itself briefly into the following theory—plants when growing fast should

have free supplies of water, which must be lessened as their growth approaches maturity, and cease, or nearly so, when that limit is attained—continuing to be withheld until the return of their growing season. The practice of placing pans and saucers under plants and feeding them by the roots—that is of pouring the water continually into the dishes and not on the earth at the top, is highly improper; the water should always be poured on the surface of the earth, so that it may filter completely through it, to the benefit and refreshment of the fibres.

Harming.

Attention to heat is not what is most important for the health of your plants. The greater number of those which you can have will always, in cold weather, be warm enough in your house, provided it does not freeze there. The essential point is that they should not pass by sudden alternations from heat to cold, and that there should be as little difference as possible between the temperature of night and day—in this respect it is not difficult to give plants satisfaction, while at the same time, by such rules, you are making yourself comfortable.

Light.

It needs not to be a philosopher to know that light is one of the essentials of vegetable economy,—quite as requisite indeed to the growth of the plant as are soil, water, warmth, or air; the only remark needful to be made here, is that you should give your plants the best light you can obtain; and as a rule the more directly perpendicularly the light reaches them, the more even will be their growth and the greater their symmetry. Do not be afraid of inconveniencing yourself a little, or of “spoiling” the arrangements of your furniture, in order that your stand may receive as much light as possible, and be placed as near to where it comes in as professional gardeners say it ought to be, and as they place plants in their greenhouses. Plants kept in windows extend their branches, leaves, and flowers to the light, and they are thereby naturally one-sided; a common but a wrong notion is to endeavour, by turning them round daily, to make them otherwise; but as the plants will just as frequently follow the light, it can only be at the expense of their strength, and in the end must spoil their appearance. Better to have a few healthy plants rather one-sided, but full of flowers, than to have them of a better shape, but weak in growth and bloom.

Ventilation.

After water, heat, and light, the renewal of air, for your plants, is most necessary. If your room is warmed by a good open fireplace, which draws well and gives you a clear fire, without filling your room with smoke, so much the better, alike for your own comfort, and for the health of your plants. Stagnant air is always unfavourable to their growth, and still more so to their free blooming. It is, therefore, absolutely necessary that the casement of your window should open, if at top and bottom it will be the more convenient ; for, by a careful regulation of ventilation and the maintenance of a moderately cool atmosphere, your blooming season may be considerably prolonged. As regards air, similar rules to those laid down for watering may be adopted ; indeed, the two elements are analogous. In winter, when the plants are not growing, large supplies of air are not so important, enough being usually furnished through the room door. As spring advances, increase the quantity, carefully guarding, however, against the cold both of morning and evening, and especially against cutting winds ; for instance, if the plants are placed out in the middle of fine days, take care to bring them in before the chill of evening comes on. After the second week in May, some

may with advantage be placed out altogether ; but as soon as the heavy autumn rains commence, they must again be brought in. In this case, they should be set out of doors when it is fine, or else be very freely supplied with air, gradually diminishing (sudden change even in quantities of air are injurious), until the decrease of moisture at their roots brings them to a comparative state of rest for the winter. It should be remembered, especially in spring and autumn, that it is no rule the plants should be set out to-day, because they were out yesterday. The temperature of the air is alone the safe criterion—above all let this be your motto: “avoid sudden changes.”

Cleaning.

Plants in a room have really few enemies, except dust (necessarily raised by the sweeping) and insects. Of the latter we shall speak in another division. All plants having large and thick leaves, such as the *Ficus elastica*, *Camellia*, etc., ought to be wiped over occasionally with a moistened sponge. To cleanse the smaller leaved subjects, fill a watering pot, the rose of which has very fine holes, with water of a proper temperature, next incline each pot containing a plant to be cleaned, separately, over the

sink or a large vessel, and then with the watering-pot, turning the plant round all the time in every direction, pour on it a fine shower, which will have the nearest effect to a natural rain you can produce. By this means you will avoid wetting the earth of the pot to excess, while the plants will be perfectly freed from dust.

The leaves of plants act as the lungs by which they breathe ; if these become dirty, their respiration is impeded ; therefore, in all cases, an occasional careful sponging is requisite. In spring and summer, give them the full benefit of genial showers, which will do them more good than any artificial watering.

It is hardly necessary to mention that the removal of decayed leaves and flowers, immediately they become so far withered as to be detached by a slight touch, is a matter of the highest importance : their retention is exhausting as well as unsightly.

Potting.

Always use in potting abundance of drainage, consisting of broken potsherds, charcoal, or oyster shells, and never allow the surface soil to become hard or moss-grown, but loosen it occasionally with a piece of stick. Charcoal,

besides its properties in draining, is an invaluable disinfecting element, keeping the soil sweet, and thereby benefiting both the health of yourself and your plants. Never fill your pot to the brim with compost ; pots too full are difficult to water ; those of a small size are the best for every purpose : they take less room and are much more convenient. We rarely use any thing larger than five inches across.

These general attentions are applicable to all plants that can be cultivated in-doors.

CHAPTER III.

Appliances.

Great success the result of small means.—Existence of Flowers under unfavourable circumstances.—A lesson to be learnt.—Requisites.—Soil.—Pots.—What to avoid and what to use.—Sizes.—The Flower stand: Various materials employed: Instructions for making.—Iron Stands.—Flower Boxes.—Hanging Baskets.—Covers for Plants.—Tools.

THE greatest of our scientific discoveries have generally been the results of small means; had large resources been at command, probably it would have taken longer periods to accomplish the same ends. Necessity is truly the mother of invention; and this holds equally of the cultivation of flowers and greater matters. Not only do we often find these beauties of nature cultivated in places, and under circumstances, the least likely, but we also frequently find them grown most successfully in such cases, simply because the cultivators are led, through the dangers to which their favourites are exposed, to pay greater attention to their requirements. To walk through some of the streets in the Borough and note the

display of foliage and bloom in the habitations of the poorer classes, is enough to make one long to produce their equal. It is astonishing, too, to observe what is done in an atmosphere thick and foul, and generally pervaded with smoke and steam. The Creeping Jennies, Mother of Thousands, Fuchsias, Begonias, Geraniums, and Ivy, are to be seen under these circumstances in full beauty, in many of these habitations. That this atmosphere is most suitable, or that the plants grow without attention, are notions no one can harbour for a moment. Indeed, may we not here, again, learn the lesson, that everything depends on exertion and attention; and if with such disadvantages, so much may be done, may not more be accomplished by the advantages possessed by the majority?

The few requisites we shall now enumerate, are almost indispensable. There are always, in every pursuit, as in every sphere, certain appendices which may very correctly be termed luxuries. Our space being limited, we shall simply notice the necessities.

Soil.

The compost which we recommend, as best adapted for universal cultivation, would be formed of equal

portions of peat, loam, and silversand. It is often difficult to obtain these ingredients separately, especially in the neighbourhood of large towns ; and a more ready mode may be an application to the nearest nursery, where you will obtain what you require at a moderate cost. For parlour gardening always avoid potting with soil of a too retentive nature.

Pots.

Let these be always clean. Clean pots make clean plants. New pots should always be soaked, and old pots should always be well scrubbed before being again put to use.

Avoid all those made of non-porous substances ; glazed ironware, or stoneware, is always prejudicial ; for plants are never healthy unless air reaches the soil and moisture escapes through the pores. Do not, therefore, sacrifice the health of your plant for the sake of a handsome outside. Besides, the clay pots are the most economical, and when kept clean, are far from unsightly. They are sold in casts at the pottery, and the following table exhibits the number to the cast and the size across in inches :—

No.	Width and depth.
90	3 $\frac{1}{4}$ inches.

No.	Width and depth.
60	$3\frac{1}{2}$ inches.
48	5 „
32	6 „
24	7 „
16	$8\frac{1}{2}$ „
12	10 „

Some horticultural writers, in giving directions, quote the size of pot, others the number only. The prices vary from three shillings to five shillings per cast.

The Flower Stand.

Much depends on the situation to be occupied, and the expense you propose to incur in the purchase or construction of the flower stand. The prettiest are made of wood and painted white and gold—costing sixty shillings and upwards; others equally pretty, or nearly so, may be had for fifteen shillings upwards, consisting of rustic work ornamented with bark, or of cane, neatly varnished. Both these styles are exceedingly appropriate. Some specimens exhibited for sale at the Floral Hall, Covent Garden, and at the Crystal Palace, were universally and deservedly admired. At the same time, it is not within the power of many to expend even the

smallest of these sums, and the alternatives are wire or basket-work. These are open to objections—ordinary wire-work always looks naked, and basket-work generally appears clumsy.

A very neat and economical stand may, however, be made as follows:—Select your shape, a circle or oval, or some other form suitable to your window (a circle or oval would make the prettiest, although a long stand gives a better position to your plants); then procure a piece of wood of the desired form, about three-quarters of an inch in thickness. A few hazel rods about one inch in diameter, if sawn into short lengths, will readily split tolerably straight down the centre—a knife or small hatchet being the best tool for the purpose; they must then be trimmed off at the sides to make them as straight as possible, and sawn to a gauge at either end. The slips are to be nailed perpendicularly round the edge, and to extend one inch below the bottom of the board, and about five inches above. An easy method to obtain regularity in this, is to place a book or some other substance of about an inch in thickness on a table or other perfectly flat surface, and upon this place your wood. The slips all touching the table, may be nailed on, thus securing a uniform height all round. A piece of cane may also be fixed round the



THE FLOWER STAND.

top and bottom with sprigs, keeping the uprights in their proper places, thus greatly improving the appearance of the stand. When a round or oval shape is convenient, a second circle, smaller than the other, and of a lighter make, placed on a pedestal six inches high, will enable you to raise your plants in the centre, and so break a surface, which otherwise might be considered flat. Legs may be made from oak loppings, and a small band of zinc edging, of an ornamental character, to be procured at a trifling cost, tacked round the upper and lower edges, will make a very pleasing and useful stand—the more interesting of course, because the production of your own labour. The stand will be completed by fitting a zinc tray at the bottom, having a vent at one side, for the purpose of drainage. The whole may either be painted or varnished—a cheap substitute for the latter being a mixture of equal parts of boiled oil and dryers. The stand may be filled with moss, in which the pots containing the plants may be plunged. This, in summer, will greatly prevent loss of moisture by evaporation. The moss, before being used, should be well washed and cleaned, otherwise you will do more harm than good, by introducing a host of enemies, in the shape of insects. In the International Exhibition very nice stands are shown in iron, by the Coalbrookdale

Company, of various patterns, to suit all situations ; when nicely kept they have a charming appearance ; but for elegance and beauty, nothing approaches those exhibited in the French Court, by Usine Tronchon ; they are manufactured of wire and zinc, or sheet-iron, combined, are of elegant and useful shapes, contain moveable trays, and a trellis for climbers at the back and end, and are painted with great taste. Some of those in gilt were remarkably handsome. M. Tronchon deservedly obtained a medal. The prices were much too high ; still we hope that some of our English manufacturers will pay more attention to this class of goods.

Flower Boxes.

Sometimes it may be much more convenient to place a portion of your plants outside your window, for the summer season. If this is done, you must have some protection against the effect of the heat of the sun, which, striking the sides of the pots, would prove almost fatal to the plants. Very neat boxes for this purpose may be made in the same way as the stand described previously. Others may be purchased. The one figured in our illustration is manufactured by Mr. J. Pulham, of Broxbourne, Herts, is by no means expensive, and may

be adapted to fit any window. At these works also are made pretty flower boxes, vases, and Fern-delabrum ;



some of these are very neatly fitted with enamelled tiles and have been greatly admired. Zinc frames, with encaustic tiles fitted therein, are neat and cheap ; or in lieu of these contrivances a second flower-pot may be used. In all cases the interstices should be filled with moss or sand.

Hanging Baskets.

These may be made of gutta percha, wire work, pottery, in imitation of carved or rustic work, terra cotta, zinc, or wicker work ; the one figured in our illustration is of wire,



HANGING BASKET.

in which an earthenware pan is inserted, and can be had at Barr and Sugden's. In every case the size and shape will have to be studied in regard to the position they are to occupy. When wire work, perforated zinc, or basket work are adopted, they should be provided with a small zinc or earthenware tray, and the sides be well wadded with moss.

Covers for Plants.

We believe it would be found very advantageous, to have the stand covered over every evening with a shade of thin glazed calico, or paper. This would not only have the effect of keeping off all dust, which is very liable to rise to them in sweeping, but would secure a more uniform atmosphere; changes of temperature, it will be borne in mind, are sooner effected in the night than in the day time. The framework may consist of light iron arches, which would readily fold up when not in use, and might be so arranged as to be affixed to staples with little trouble.

Tools.

The list of tools necessary must include a small steel

trowel (a common shoemaker's knife, with a round point, will be an excellent substitute for small work) ; a watering pot, with a moveable rose, which fits tightly, and prevents the water from dripping down your sleeve, or if it screws on so much the better ; a sharp knife, to remove unnecessary or dead wood, and also for the purpose of making cuttings ; a pair of scissors ; a little bast matting, for tying out, although sticks are almost to be forbidden ; and a brass syringe. The last article, costing ten shillings or thereabouts, may be dispensed with in some instances, and admirable substitutes may be found in the end of a duck's wing, a bunch of feathers, or a stiff clothes-brush ; the latter will emit a beautiful shower of dew or fine rain, if dipped in water and the hand drawn sharply over it.

CHAPTER IV.

The Garden on the Mantel-Piece.

Requirements.—Choice of Bulbs.—Hyacinths in Water and in Soil.—Jonquil.—Crocus.—Van Thol Tulips.—Flower Pots for the Mantel-Piece.—After Management.—Hepaticas.—Aconite.—Snowdrops.

You have no idea of the number of instructive and agreeable hints we are about to give you. The title of this chapter is not in the least deceptive—you can really make yourself a garden without having any other place at your disposal than your mantel-piece. We take for granted, that you will begin in good time to light your fires, and that they will be kept up until spring has fully taken possession of the outer atmosphere. On this condition, there will be no disappointment for you, in the gratifying resources that your garden on the mantel will afford.

Choice of Flowering Bulbs.

The end of September is the time to procure good roots of Hyacinths, Crocuses, Van Thol Tulips, and other

bulbs. You must not choose the largest among these, which are not always the best by a great deal ; but select those of a medium size of their species, firm, smooth, shiny, free from spots, bruises, and softness. Those also which give premature signs of vegetation are to be rejected.

Hyacinths. The directions given in the chapter devoted to the cultivation of bulbous plants, must be referred to for instructions in planting. Four bulbs will be found quite sufficient for your mantel, and two of these may be planted in water and two in soil, being careful to select such colours as shall harmonize with the rest of your plants.

Jonquil.—Crocus. The roots of the Jonquil should be treated like the Hyacinth, using pure water. As you cannot count for certainty on the blooming of all roots, it is prudent to put at least three in the same glass—placing them on a flat, thin, round piece of wood, with three holes cut in it. They bloom at the same time as the Hyacinths. In the spaces between the glasses and pots, containing the bulbous plants, place other pots full of earth, mixed half and half with good leaf mould and peat. Plant in these Crocus bulbs, taking care to group in the same pot varieties of fine colours, pure white, white striped with violet, violet, and yellow. The

flowers of these plants, which precede the development of their leaves, contrast agreeably, by the vividness of their colours, with the pale yellow of the Jonquil.

Van Thol Tulips. Other pots, filled with the same mixture, should have in them roots of Van Thols—a charming little tulip, with a dwarf stem and petals of a bright red, bordered with golden yellow. All these flowers develop themselves at the same time, presenting a happy variety of forms and shades, in the bloom of a mantel-piece garden, whilst nature is at work without, preparing her more abundant supply of flowers in the open air.

Flower Pots for the Mantel-Piece.

Whatever may be your taste for elegance, believe in the experience given and the rules laid down, in a previous chapter, and never plant your bulbs in anything else than the ordinary earthenware pots. Their coarse surface may be concealed with coverings of glazed and crimped coloured paper, and each pot may also have placed under it a china or earthenware saucer; but this is the utmost extent you can be permitted to go in sacrifices to elegance. If you plant bulbs in rich vases of porcelain or other non-porous material, they will

languish, and your hopes will be completely deceived, for they will either bloom badly or not at all. The porous nature of the ordinary earthenware flower-pot makes it perfectly well adapted to the vegetation of roots of ornamental plants.

After-Management of Crocuses.

If you like Crocuses, and if you do not you are hard to please, you must continue to water them after their bloom. Their leaves will still not be amiss as part of the decoration of your mantel-piece garden, or you may remove the pots to some other situation. When the leaves turn yellow, you must cease entirely to water them ; but you must not take up the roots. They must remain in the dry earth until next year ; they will keep there very well, surrounded by their young family, for they produce every year a certain number of little ones, which will flower in their first spring. The bulbs ought only to be taken up every three years, and then only for the purpose of separating the clusters, without which the pots would be too full : there would not be nourishment for the whole family. When managed in this manner, the tufts of forced Crocus are more beautiful the second year than the first,

and even still more beautiful the third year, after which you must renew the plantings.

Hepaticas, Aconites, Snowdrops, etc.

Should you have room, place some of these plants on your mantel-piece. There are rose and blue coloured Hepaticas, and in addition, the yellow Aconite and the graceful Snowdrop, all of which, as they bloom at the same time with your other favourites, will still further extend the compass of your resources.

This very easy system of gardening will be found only adapted to winter practice ; still, the mantel-piece may frequently be made gay, by placing on it some of the occupants of your stand or balcony.

CHAPTER V.

The Fern Case.

The Fern Tribe, their beauty and variety.—Size of Ferns.—Adaptability to the Dwelling Room.—Cultivation.—Increase by Spores.—Manner of raising.—Purchase of Plants.—Wardean Cases, the best suited for Fern culture.—Soil.—Cocoa Nut Fibre.—Planting.—Drainage.—Charcoal.—Watering.—After-management.—Ventilation.—Replanting.—Insects.—Fumigation.—Select List of fifty varieties.—Lycopodiums.

WE come now to the consideration of the most justly popular, as well as the most beautiful tribe of plants—the Ferns. These lovely plants are the types of all that is elegant and graceful. Nothing can be more truly beautiful, than the bright green fronds of the Ferns, assuming, as they do, an endless variety of forms. Their prevailing colour is a delicate and lively green; but within the last year or two, several new species have been introduced, which, by their bright and glowing colours, quite compensate for the want of flowers, which form the chief attraction in most plants. Thus, we have now the rose-coloured and crimson fronds of *Pteris tricolor*, and in another member of the same genus, *Pteris cretica albo-*



THE FERN CASE.

lineata—we have a cream-coloured stripe down each division of the frond. Then, again, we have several families, the fronds of which are covered on the under side, (and sometimes on the upper surface as well) with silvery white, sulphur coloured, bright yellow, or orange coloured powder. So that, among Ferns, the eye is now charmed with the beauty and variety of their colours, as well as their elegant forms.

In a family comprising some three or four thousand species, it is natural to expect that there are many which will be found unsuitable for cultivation in a dwelling house. Thus, we find that some of the tree Ferns of the West Indies and New Zealand attain a height of forty feet or more; and in the centre of the fernery at the Royal Botanic Gardens at Kew, a short time ago, we saw one Fern, (*Angiopteris erecta*) which had sixteen fronds upon it, and each of these was eighteen feet in length. Such a plant would require a good sized hot-house for its cultivation, but fortunately, there are many which never attain anything like this size—there are, for instance, in the same fernery, several kinds, of which full grown specimens could be covered with a five shilling piece. We might, indeed, search the whole vegetable world without finding a family so well suited for in-door decoration as the Ferns. It is true they cannot be grown

in a dwelling room without a covering of glass, but the special arrangements they require for their accommodation are easily effected; their culture is extremely simple; they thrive in the subdued light of an ordinary living room; and are, therefore, well suited to be the ornaments of our dwelling houses, presenting us with a constant source of amusement, and furnishing us continually with the purest pleasure, as we watch their growth from day to day.

Their cultivation is so very simple, that it might be trusted to a child. In order to begin at the beginning, let us commence the few remarks which it will be necessary for us to make upon this subject, by showing how they may be raised. Our readers need not be told that as Ferns do not produce flowers, they consequently have no seed. They are increased by the spores, which are produced upon the back or edges of the fronds. If we take, for instance, a frond of the common Polypody (*Polypodium vulgare*), we shall find certain little yellow dots upon the back of the frond—we examine them a little more closely with a pocket lens, and find that each dot is made up of a number of pear-shaped bodies. These are the spore-cases, and each one contains a little powder, so extremely fine, that the individual grains or spores cannot be seen without the aid of a good

microscope ; and yet, these minute grains of dust are analogous to the seeds of flowering plants, and each one is capable of reproducing a plant exactly like its parent. The number of spores produced by a single frond must be almost incalculable ; it is another instance of the care with which the great Creator of the universe has guarded against the extinction of even the simplest weed.

Should you wish to raise any Fern from spores, gather a piece of the frond bearing fructification, and examine it with a lens, so as to make sure that you have really got the spores. If you find the spore-cases split on one side, you may be almost certain that the spores are gone ; they have been wafted away in the air unseen. Gather then, a portion of a younger frond, and carefully fold it up in a piece of paper. This should be carried in the pocket, or placed in some warm and dry spot for a few days ; by that time, the spore-cases will have opened, and the spores be ready for sowing. Take a small flower-pot, and having drained it in the usual way, fill to within half an inch of the top with the soil to be described hereafter, mixed with a little extra sand. The soil should be pressed down moderately hard, and made quite level upon the surface ; then, give it a good soaking with water from a rosed watering-pot. Carry the pot

into a room, of which you had better close the doors and windows, or after all your trouble a draught of air may deprive you of your spores, without your even knowing it. Carefully open the paper, and sprinkle the powder found in it upon the surface of the soil, and, at once, cover it with a piece of glass which should fit close to the rim of the pot. This glass should not be removed until you see that your Ferns are growing ; in order to keep the soil moist, place the pot in a saucer, which should be occasionally filled with water, and this will soak up into the soil by capillary attraction. The soil should be kept moderately moist, and never allowed to become quite dry. The pot should be placed on the inner sill of a window facing the north, or in case that aspect cannot be found, the pot should be shaded from sunshine by a sheet of paper, so as to prevent the too rapid evaporation of the moisture. The spores of many kinds of Ferns, such as the Doodias, the gold and silver Ferns, etc., will commence germinating in the course of three weeks, but others will lay for months upon the soil before they begin to grow.

Most of the common kinds of Fern may be raised as described above, but a few others succeed better by another simple plan. The spores may be sprinkled on the wet surface of a piece of soft common brick, or a

fragment of porous sandstone, which should then be placed in a saucer of water, and covered with a tumbler or bell-glass.

As soon as the spores begin to show the little, green, kidney-shaped shields, spreading almost flat on the soil, which is the way in which they commence their growth, they should be thinned out, so that they may not choke each other ; and when they have made their first frond, they should be carefully lifted out with the point of a stick, and placed about one inch apart in a pot prepared like the first. It will be better not to let the pot stand in a saucer after this, or they may become too moist and rot off; when they have reached this size, you may safely water them in the usual way, but they will not require it often. A bell-glass should now be used to cover them, and this should occasionally (especially after watering) be tilted a little on one side for about half an hour in the morning, so as to give them a little fresh air; but be very careful that a draught does not reach them, or they will be all withered up. Although it is very interesting to watch the gradual development of the young plants, yet it must be admitted that it is rather a tedious process, and we would advise our readers to purchase at once such plants as they require from some nurseryman, who has a large stock to choose from,

and, who devotes especial attention to Ferns, as for instance, Mr. R. Sim, of Foot's Cray, Kent. Many Ferns may much more readily be increased by division than by raising them from spores. Pieces parted off from an old plant, with a few roots attached, as well as your seedlings, when two or three inches high, may be transferred to their future home—the Wardean case—which we will now proceed to describe.

A Wardean Case is simply a miniature greenhouse. We employ both of them, in order to secure to their inmates an atmosphere differing from that outside. The atmosphere inside one of these cases is much more moist than that of the room in which it stands, and consequently is far more congenial to the plants ; but there is also another important service, which these cases perform ; they prevent dust and other impurities from settling upon the foliage, and thus, the plants are more easily kept in health. The forms and sizes of which these Wardean cases are now made are almost infinite, and their fitness for the position that they are to occupy can only be decided upon the spot. There are, however, certain points in their construction, which should be kept in mind. In the first place, they should be airtight, but provided with the means of being opened, not only for the purpose of ventilation, but also for

getting at the plants. And secondly, the lower part of them, that is, the part containing the soil, should be lined with zinc, and there should be an aperture at the bottom, to be used for drawing off the water, which drains through the soil; it may be closed, either by a tap, or simply with a cork. If these two points be attended to, Ferns may be grown in any kind of Wardean Case, large or small. The top of the case should be made to lift from the part containing the soil. The box for the soil should be nine inches deep in large cases, while six, or even four inches, will be found sufficient for small ones.

Those who live in towns will, perhaps, find it advisable to purchase the soil from the nursery-man who supplies them with the plants. But if they have the means to make up the soil for themselves, they will find the following compost suit their plants. The principal part, say three-quarters of the required quantity, should be peat, not sifted, but rough and fibrous, the remaining quarter to be made up of well decomposed leaf-mould and loam in equal proportions; and then, a sufficient quantity of coarse sand mixed with it to make the whole feel gritty, when a little of it is rubbed between the hands. There is a substance which has within the last few months gained much popularity, and, so far as

our own experience goes, we should strongly recommend it to be largely mixed with the soil used in Fern growing. It is the refuse from the cocoa-nut fibre manufactories, and can, in some places, be more easily procured than peat. Ferns, Orchids, and many other plants, grow freely in it, and we have not the slightest doubt but that it will be found of quite as much service to window-gardeners as it has been to those who have more extensive means for the cultivation of plants.

Having, then, procured our soil, the next thing is to plant the case. At least one-third of the depth of the box should be filled with some material which will ensure perfect drainage, for although Ferns like plenty of moisture, yet, stagnant water about the roots would be fatal to most of the smaller and more delicate kinds. The material commonly used for this purpose is broken flower-pots, but charcoal would serve the purpose better, and, at the same time, be lighter, and, therefore, make it more easy to move the case about. Over the surface of the draining material, spread a thin stratum of moss, or the fibrous part of the peat, so as to prevent the soil from getting down and choking the drainage. Then, fill in your compost, and, if your case be a large one, or the plants you intend to cultivate small, you will find it advantageous to mix in with it, here and there, a few

pieces of charcoal or sandstone about the size of a walnut. These not only aid the drainage, but, being open and porous, they absorb the moisture when plentiful, and give it back slowly. Should you examine the case a twelvemonth after it has been planted, you will find the roots of the ferns clinging to these pieces, and most likely covering them with a net-work of young fibres. The soil in the centre of the box should stand rather higher than round the edges. It should, too, be somewhat moist, and the ferns intended to be planted in it should be previously examined, and if any of them are found to be dry, they should receive a good soaking of water. Should they be dry when planted, the chances are that one of two evils will follow : either the soil will fall away from the roots, thereby injuring the plant to a certain extent, or the plant will suffer from the want of water for some time to come ; for, when the case is watered, the water will pass more readily through the new soil, leaving the old ball still dry. In planting the case, it will, of course, be advisable to have the larger growing kinds in the centre and the smaller ones around ; the subjoined list will be found useful in giving the necessary information on this point. All the little spaces between the plants may be filled up with one of the Lycopods (or, as they are now more generally called, Selaginellas) ; they will grow

from the smallest pieces, if merely stuck into the soil, and will quickly cover the whole surface. When the case is planted, it should receive a good watering, and, being left for an hour to drain, the glass may be put on, and the case is then fit to take up its situation near one of the windows in your dwelling room. An east or west window would be better than one facing the south, for it must not be exposed to direct sunshine; if, however, there be no alternative, the case can easily be shaded with a piece of thin calico during such time as the direct rays of the sun fall upon it.

The after management of the case is a very simple affair. It will need water but very seldom; in fact, should receive it only when the soil is found to be getting dry. The principle which Mr. Ward had in view, when he invented the case named after him, was that the plants should be kept air-tight; but this is not found to work well in practice, as a general rule. The case should, as we said before, be quite close, so as to exclude the air when it is hot, dry, or dusty, but should now and then be opened for an hour, when circumstances are more favourable, for the purpose of ventilating it. If kept constantly closed, the plants will become weak, or, as gardeners phrase it, "drawn". The case should, then, be opened occasionally, say once or twice a week, for an

hour in the morning, but the window should not be open opposite the case, and care must be taken that a dry current of air does not reach the Ferns. They will also require to have the dead fronds cut off as soon as they turn yellow, and the Lycopod will need a little trimming now and then, to prevent its overgrowing the other plants. Sometimes the inner surface of the glass will become green, from being constantly moist with the condensed moisture, but this is easily washed off. About once in the year, the case will need replanting. A few of the plants will by that time have got too large for their position, probably, and some of the little ones will have been nearly choked by their more luxuriant companions; it will, therefore, be advisable to rearrange the plants, introducing one or two novelties, to replace some of the larger ones. The best time in the year for performing this operation, will be early in the spring, just as the plants are preparing to make a fresh growth; it may, however, be safely done at any season.

If the atmosphere inside the case be congenial to the plants, the inner surface of the glass will be covered with condensed moisture, more especially in the morning. When this is not the case, it may be accepted as a sign that the case requires watering, and it should accordingly be examined.—There is little fear of annoyance

from insects; but, before planting them, the plants should be examined to make sure that they are clean. If proper attention be afterwards paid to the watering and the state of the atmosphere, insects will give but little trouble. There are, however, one or two kinds which will need looking for occasionally. These are a small brown scale, which fixes itself close to the surface of the frond, and can only be destroyed by being killed individually, and a small grey insect, called "Thrip", which is still more injurious to the plants, but more easily destroyed. As soon as these latter insects are observed, and their presence may be known by the fronds losing their green colour in small spots or along the edges, the case should be filled with tobacco smoke, and it would be well to give them a second fumigation a day or two after the first. In Spring, too, there may be a few green flies on the young fronds, similar to those so common on the young shoots of the Rose, but a single fumigation kills these immediately. The best way to fumigate the case, is to take a common tobacco pipe, and by blowing into the bowl, send the smoke through the tube, the point of which will be introduced into the case. The smoke should be so dense that you cannot see through the case.

It only remains for us now to give a selection of ferns

suitable for cultivation in a Wardian case, and in doing so we shall mention only those which can be obtained at a moderate price, which can be grown without any special care, and which will furnish as great a variety as possible in their foliage.

Adiantum. All the species of this genus, generally known by the name of the Maiden-hair ferns, would be suitable for this purpose while young. Their black polished stems, almost as fine as wire, and the beautiful forms into which the fronds are divided, make them general favourites. We may select the following out of the many kinds: none of them will exceed a foot in height. *A. Capillus Veneris*, *A. affine*, *A. cuneatum*, *A. formosum*, and *A. hispidum*.

Asplenium. This, like the last, is a very large family, of which there are at least forty kinds to be found in our gardens. *A. Hemionitis*, six inches high, with fronds shaped like an Ivy-leaf; *A. marinum*, about a foot high when full-grown; *A. flabellifolium*, a trailing Australian fern, the fronds keeping nearly close to the soil and rooting at the points; *A. flaccidum*, eighteen inches high, fronds drooping and covered with young plants; *A. ebum*, not more than nine inches in height; and *A. Belangerii* (called also *A. Veitchii*) a very pretty fern, and not likely soon to become too large for the case.

Blechnum lanceola, with lance-shaped fronds, three inches high, and *B. gracile*, nine inches or a foot.

Cheilanthes farinosa, extremely beautiful while young, under sides of the fronds perfectly white ; attaining one foot in height. *C. profusa* a trailing fern, the stems throwing up a number of small fronds only a few inches high.

Cincinnatia flavens and *C. nivea*, two little gems, the former being covered with golden and the latter with white powder on the under side of the fronds. They will not grow many inches high.

Cyrtomium falcatum. When full-grown, the fronds of this Japanese fern are two feet long ; but they will be some time in attaining that size, and they are very beautiful from their glossy dark green colour.

Doodia caudata, four inches high. There is a variety of this, called *D. caudata confluens*, which is prettier than the parent species. *D. lunulata* has reddish stems, fronds drooping, a little longer than in the other species.

Fadyenia prolifera, a very peculiar little West Indian fern ; the fertile fronds are erect, three inches high, the sterile ones are broader, spreading nearly flat on the soil, and rooting at the points where they produce young plants.

Gymnogramma. This is the genus to which most of the gold and silver Ferns belong. Seedlings are easily raised, and when they are too large for the case it is a simple matter to replace them. *G. Calomelanos*, stems black, fronds white on the under side. *G. Mertensii* and *G. chrysophylla*, both golden ferns. *G. sulphurea*, a smaller grower, being only about six inches high, and, as the name implies, of a sulphur colour. *G. pulchella*, frond more finely divided than in the other kinds, and generally of a white or sulphur colour.

Hemionitis palmata, about four inches high, and well worth growing, as it is so distinct from all the others.

Leucostegia immersa, six or eight inches high; the fronds die off in winter, and new ones are produced in Spring: this is not the case with any other kind mentioned.

Llavea cordifolia (known in many nurseries as *Ceratodactylus osmundoides*). The fronds are a foot high, of a grey green colour, unlike that of any other; and this, with the silver scales covering the stems, makes it a very attractive plant.

Microlepia, Novæ Zelandiæ, a very beautiful and finely divided fern, rapidly increased by its creeping rhizomes. Fronds six or eight inches high.

Onychium lucidum, a foot and a half high when full-grown; fronds erect and finely divided.

Pteris tricolor, the beautiful variegated fern already mentioned, crimson and pink while young, dark green and white when mature ; *P. Geraniifolia*, stems black and shining, fronds shaped like the leaves of the wild Geranium, generally known as Herb Robert, four to six inches high ; *P. Cretica albo-lineata*, fronds somewhat erect, a foot or eighteen inches high, with a creamy white stripe down each division ; *P. scaberula*, another little trailing plant, with finely divided fronds, like the *Microlepia* above mentioned.

Pellaea ternifolia, a foot high, very distinct in colour and mode of growth. *P. flexuosa*, a half climbing fern, very well suited for a Wardian case while young, but likely to grow rather fast. Its stems, bent in a zig-zag manner, make it, however, a very interesting addition for some time.

Polypodium plebejum, not more than four inches high, the fronds dotted with scales in a peculiar manner.

Polystichum triangulare, a very pretty little plant for the outside row ; Mr. Sim, of Foots Cray, now possesses several varieties which even surpass the parent species in beauty.

Platyloma rotundifolia, a New Zealand fern ; the little round leaflets arranged in a row on each side of the drooping stem.

Platyserium Elcicorne. A little scrap of this—the Elk's horn fern—should be introduced about the centre of the case, as it adds much to the variety of the foliage.

Trichomanes radicans, the Killarney Fern, does very well in a glazed case in a living room, but not when other plants are mixed with it. It requires to be kept much more moist than most Ferns, and, therefore, should be grown under a bell-glass, or in a little case by itself.

Todia pellucida, a very elegant New Zealand Fern, with finely divided fronds, which are semi-transparent.

These, with half a dozen Lycopods, will make up fifty plants; to make the list longer would only make it confusing; we, therefore, have only given a select list, each plant named in it being worth the growing.

Selaginella uncinata, with a beautiful blue metallic colour upon the foliage; *S. Braziliensis*, small, bright green, and moss-like; *S. denticulata*, the most common kind, larger growing than the last; *S. cauliscens*, very pale green, semi-erect; *S. stolonifera*, dark green, branching; *S. Willdenowii*, upright, somewhat rigid fronds, very beautiful.

CHAPTER VI.

Succulent Plants, Cacti, etc.

Étagères.—Succulent Plants: their nature.—Leaves and Stems.—Uses of the tribe.—Dwarf Succulent Plants.—Large specimens at Kew.—Earth and Air requisite.—On what do they live?—Soil.—Opuntias.—Cocus Cacti.—Cochineal Insect.—Opuntia Coccinellifer in England.—Opuntia Tuna.—Melocacti.—Echinocacti: Number of Spines.—How the goats evade danger.—Stapelias: their singularity.—Mesembryanthemums.—Ice Plants.—Sedums.—Crassulas.—Other varieties of Cacti.—Agave Americana.—Euphorbia.—Cereus.—Epiphyllums.—Gasterias.—Aloes.—Culture of Dwarf Succulent Plants.—Necessity of depriving them of water during their sleep.—Grafting the Cactus.

A VERY favourite occupation of amateurs on the continent is the cultivation of dwarf succulent plants. These are mostly grown on stands or étagères. There are numerous reasons why the tribe of Cacti, and especially of miniature Cacti, should be much more frequently adopted as occupants of our stands, and the present chapter will treat of their cultivation and management. This series of plants belongs, for the most part, to an order of vegetation having a very peculiar organization, and endowed with extraordinary

vital energy. They are commonly called succulent plants, and are remarkable for the thickness of their fleshy persistent leaves. In a great many of these plants, the stalk and the leaves are one and the same organ; the leaves, when leaves exist, fulfil the functions of the stalk, and, reciprocally, when the leaves are wanting, their vegetative duties are fulfilled by the stalk. It is, however, very difficult in some of the Cacti species to define the leaves, for although generally considered leafless, structurally they bear leaves at those points which are afterwards occupied by tufts of spines. These, in many cases, however, fall off in a very early stage of growth.

What nature seems to have withheld in the appearance of the plant prior to its flowering, she has most certainly bestowed in the splendour and fragrance of the bloom. In the midst of the most arid districts, the traveller frequently finds in its sap a refreshing beverage; that, especially, of the *Opuntia* is a favourite dessert in the West Indies. As a medical agent in fomentations, also as hedges and boundaries, and even in building, the Cacti tribe are held in estimation. Although succulent, yet when of sufficient age, they form into exceedingly light and firm wood, frequently used by travellers for the purpose of cooking their food; while we are told that

the beams, door-posts, etc., of the Mayoral residence of Antisana, the highest inhabited spot in the world, are formed from the stems of the Cescus or torch thistle.

Dwarf Succulent Plants.

Much skill and patience have been displayed by horticulturists in the dwarfing of these pretty plants, some of which, when left to follow their own inclinations in their native country, attain to colossal dimensions. Two magnificent specimens of the *Echinocactus Vinaga* were forwarded to England, from Mexico, some few years ago; one of them weighed upwards of two thousand pounds; the other was not so large. Both were planted in the Gardens at Kew, and attracted considerable attention,—but, unfortunately, either from some injury received in transit or afterwards, both sickened and finally decayed, although the latter specimen lived several years.

Had we but little time at our disposal we should be inclined to pay particular attention to the cultivation of succulent plants, as being less likely to sustain injury from inattention to their wants, and, at the same time, affording considerable variety both in blossom and form.

Earth required for Succulent Plants.

One fact, which above all others must strike us in examining a collection of dwarf succulent plants, is the extremely small quantity of earth allowed to them. Of those which come most properly under this head, some will live in pots of the size of an ordinary tumbler, whilst others are cooped up in still narrower lodgings,—their domicile not exceeding the dimensions of a small wine-glass. This is because, in general, the succulent plants, dwarfed or not—do not live merely by their roots, “Then,” you say, “on what do they live?” They sustain themselves on an aliment with which alone none of us would be content, they literally, and without figure, live on the air. All plants live more or less on the air, even those which derive the greater part of their nourishment from the earth. It is easy to illustrate this. Suppose some immense tree felled, split, and cut up in pieces, and then converted into charcoal. It would make an enormous mass, and do you imagine that the tree could have drawn this mass from the soil in which it grew, containing as it does but a small degree of carbon in its composition? No, it drew this material from the atmosphere, by decomposing the air with its leaves. This is what our pretty little dwarf succulent plants do, and without this

faculty, which they possess in a very high degree, they would not live. Certain botanists, however, without disputing the necessity of air, deny the fact that each plant draws its principal nourishment from this element. Cacti shoots, when detached from their parents, have been known to grow several feet. De Candolle, however, states that he weighed several such shoots, and when grown without soil, although larger, they were less in weight, the whole of the growth having taken place at the expense of the strength and moisture contained in the plant.

Soil.

The best general soil for Cacti is a mixture of sand and leaf mould, two thirds of the latter. Good drainage is also indispensable, and this is greatly accelerated by mixing small pieces of crocks among your compost. The roots of your specimens will always delight in these ; press your soil down as firmly as possible, and use it in a dry state, taking care not to overpot.

Opuntias.

The *Opuntia*, or, as it is more commonly called, the prickly pear, has leaf-stems, or stem-leaves, whichever

you may choose to call them, formed as if so many battledores were placed alongside each other. They are natives of the warmest parts of America. The fruit is eaten in Virginia, and has been known to ripen in England. It is perfectly hardy ; indeed, if planted out of doors, would survive, under favourable circumstances, several degrees of frost. These little plants represent to you in miniature those on which in Mexico, and in the island of Madeira, lives the insect cochineal (*Coccus Cacti*). This insect is a parasite, and has been formerly the subject of discussion as to its nature, whether an insect or the seed of the plant. *Opuntia coccinellifer* is the true cochineal cactus, and is cultivated with great care in fields, called Nopals or Nopalerie. A pound weight of cochineal contains seventy thousand insects, but the females are alone valuable. When fully developed, they are swept off with a light brush, and are easily killed by the application of hot water or the heat of the sun, afterwards furnishing to dyers and painters the finest red, under the name of Carmine. Specimens of the *Opuntia coccinellifer*, with the cochineal insect, were this year exhibited both at Kew Gardens and also at the gardens of the Royal Horticultural Society at Kensington. *Opuntia tuna* is another variety, and is frequently used as a fence in its native clime. Thus, in the island of

St. Christopher, the line drawn between ourselves and the French was composed of *O. tuna*.

Several other varieties occupy places in our stand, but we cannot with certainty name them.

Melocacti and Echinocacti.

A popular distinction between both these and the *Opuntias* may thus be defined :—*Melocacti* are generally huge barrel-like masses—*Echinocacti* are fluted pillars, while *Opuntias* are ovals flattened—the rounded forms of the former, composed of prominent ridges with a pretty crown of satiny flowers of a fine golden yellow, resemble no other family. In the mountains of the interior of Brazil, and in those of the centre of the island of Jamaica, these same plants—plants of the same species that you see here reduced to such exceedingly small proportions, grow upon the slopes of the most arid rocks, and become very large. Knowing this, you will understand how their bunches of spines, inoffensive in the dwarf plants because of their diminutive size, constitute defensive weapons, whereby they are preserved from the teeth of animals. Sir W. Hooker says, “that an *Echinocactus wislizenii*, in the possession of F. Scheer, Esq., was found to have 8,360 spines, and the *Echinocactus visnaga*

(so named from the Mexicans using the spines as tooth-picks, whilst in other parts of South America, the stoutest are used as pins in the fastening of their cloaks) in the Royal Gardens had 17,609. There was formerly at Kew a specimen of the latter, which was, at least, three times larger, and which could not have had less than 51,000." These, it must be remembered, are only small specimens, compared with those flourishing in their native wilds. Nevertheless, these arms prove useless to them against the wily attacks of the numerous herds of goats kept by the English Colonists. The goats, essentially climbers by nature, climb up the most abrupt acclivities of the rocks, covered with *Melocacti* and *Echinocacti*. There, using their horns for the purpose, they root up those plants, and roll them down into the valley, where, as a preparation for eating them, they play with them as a child would play with a toy-balloon, until by dint of rolling and tossing them about on the pebbles, the thorns have all been shaken out. Then the goats are able to feast upon them without damage to their mouths,—just as though the thorns of the colossal *Cacti* were to be as little dreaded as are those downy representatives produced by their sisters in miniature. *Melocacti*, in a natural state, are found in the driest situations. It will be sometimes necessary, in cultivating the *Melocacti* and

Echinocacti, to repot. In this case, shake off all the old soil, without injuring the plant, and remove any parts of roots which may be decayed ; use plenty of drainage, and spread the roots out carefully, potting as firm as possible.

Stapelia.

These, when not in bloom, resemble Cacti, and expand strange star-shaped flowers—thick, fleshy, and violaceous, set with rough hairs. The odour of this plant, when in bloom, is scarcely pleasant ; but still this peculiarity should not induce you to exclude it from your collection, where, by its singularity of form, it will not be misplaced. The smell, which is scarcely strong enough to incommode, resembles meat kept too long, and meat-flies frequently lay eggs on the plant.

Mesembryanthemums.

Another family of succulent plants are Mesembryanthemums, bearing flowers of most shades of rose, quite down to white. If their name seem too learned, call them plain Ice-plants, which is the popular name of the variety commonly cultivated. The leaves, as well as the stalk, are powdered white, as if covered with

frost. Many of the family may be easily raised from seed sown in light sandy soil, and afterwards transplanted into pots. Of varieties grown in a window, we have had *M. crystallinum*, already mentioned ; *M. tricolor* (remarkably pretty and almost stemless, bearing flowers of rosy purple) ; and *M. cordifolium* (another variety, with bloom of bright red).

Sedums.

The Sedums are little less various than the Cacti—are perfectly hardy, and are, perhaps, more suited to the balcony than the window. *S. acre*, or Wall pepper, makes a very pretty and useful addition ; while there are many others to be obtained at a trifling cost.

Crassulas.

The list cannot be complete without some of the exquisitely formed Crassulas, with their little bunches of red flowers of various shades ; and directions for their cultivation will be found in the chapter devoted to miscellaneous subjects. When you have made your selection among the varieties of Cacti, etc., you will find that you have collected quite a large family, and, with proper management, for more than six months of the

ear, you may expect to have some of your dwarf succulent plants covered with bloom.

Other Varieties of Cacti, &c.

Although not exactly coming under the head of *Dwarf* succulent plants, still, as requiring almost similar treatment, we would recommend all the following, which we have successfully cultivated:—*Agave Americana*, both of plain and variegated foliage; *Euphorbias*, of which there is a large family, and which the children always liken to a prickly Scarlet Geranium; many of the *Cereus* will succeed admirably; *C. Jenkinsonii* hangs down, at the present time, in tails thirty inches long, and last spring was covered with bloom; another variety much resembles the hedgehog, and is, we believe, *C. reductus*—it bears a beautiful white bloom. Some of the *Mammillarias* do well for a time. *M. densa* we find to drop off from its roots; but it is, however, soon reinstated by a host of young ones, while the old part takes a fresh root. A pot which we have not disturbed presents quite a curiosity. *Epiphyllums* are some of them very showy. *E. speciosissima* and *truncatum*, are the names of two varieties we possess. When they have done flowering, we generally trim them in a little removing part of the old and also any weak new growth

and, if it is required, pot them afresh, using a little richer soil than for many of the others. Water may be administered to promote a free growth, but when that is formed, it is to be totally withheld, and the plants turned out of doors in the full heat of the sun, in order that they may ripen their wood. Gasterias, some with variegated leaves, and racemes of bright flowers, may be selected, and also Aloes. Of the latter, the only names by which we can describe the two we possess are the Toad (bearing a most singularly beautiful bloom) and the Dog-toothed. There is, too, a plant something tongue-shaped, thick, and covered with a white furry substance, which we have always supposed to be *Rochea falcata*; while we must not forget a pale delicate pink Cactus, which blooms very freely, and is annually the admiration of everyone.

Culture of Succulent Plants.

Cacti, in their native climes, bear excessive heat and dryness for six or seven months without interruption, followed by deluges of rain. The most violent rain storms in our latitudes afford but a very faint idea of these tropical deluges. During the dry season, the vegetative life of the Cacti is nearly quite sus-

pended. Their sleep is then much more profound than that of plants with us which lose their leaves in winter. Now, from the knowledge of these facts, we may perceive what sort of management is most suitable for them. All those which give no signs of active vegetation, that is, on which neither young shoots nor flower-buds make their appearance, ought to be watered only once in ten days. You may even abstain altogether from watering them ; there will be neither more nor less budding for it when the proper time comes. Continue the same treatment, if, at the return of warm weather, the Cacti show no signs of flowering—leave them dry a month or two, they will not die for it. When they begin spontaneously to vegetate, commence to water them with water of the temperature of the room ; at first moderately, afterwards a little more freely, but *never* to excess. The floods of rain that they get in their native country do not hurt them there, because the tropical climate renders evaporation rapid. It would not be the same in your house. The quantity of water should be a table-spoonful for pots the size of a tumbler, and a tea-spoonful for those of the size of a wine-glass.

Our collection has much improved since we occasionally sponged over the leaves ; in summer we do

this frequently, and with water of a warmer temperature than the atmosphere.

Necessity of Depriving them of Water during their Sleep.

To illustrate this point, we would relate the following: A botanist who was fond of Cacti, and who had a fine collection, received from a friend a box of Cacti from Minas Geraes in Brazil, which he hastened to put into pots in his conservatory, at the same time putting by in a drawer a duplicate set of specimens of which he purposed to make presents. Obligated to set out on a journey, he forgot these, and on his return, after an absence of several months, he found them faded, withered, and in so deplorable a state, that he thought them lost. Nevertheless, he planted them, and began to water them, administering it by degrees. All revived and flowered abundantly, whilst of those which he had planted and taken great pains with ever since their arrival, only a portion bloomed. His gardener had been afraid of letting them suffer from thirst, and had given them too much to drink. Keep in mind, then, that in order that your Cacti may bloom, it is necessary that their periodic sleep should be complete, and that it cannot be so, if

they are watered at the wrong time. The temperature they require in winter is such as would be agreeable and comfortable to yourself. When in bloom, if the weather is favourable, put them before the open window. Your Cacti will be the better for it; their bloom will be more brilliant and of longer duration. Other succulent plants require a little more water in winter. Their sleep is never so absolute as that of the Cacti; nevertheless, if you would have them to flower well when they awake, let them sleep undisturbed. Do not water them except when they appear evidently to be suffering from thirst, and then give them only so much as is necessary to relieve their wants.

Grafting the Cactus.

Many Cacti may readily be grafted one on the other. The operation is performed by taking out a small part of the plant you propose to engraft, and attaching it by cutting away a slice of the fleshy part of the stock. A small portion of the fleshy part must, also, be cut away with the piece to be attached, to secure its adhesion. The sap is so glutinous, that the graft would adhere without tying, although, to prevent a slip, it is better to secure it with a shred of matting, being careful not to bruise the plant.



SPRING FLOWER BASKET.

CHAPTER VII.

Bulbous Plants.

Buying Bulbs.—Auctions.—Soil.—Snowdrops.—Snowflakes.—Crocus.—Early Tulips.—Jonquils.—Ixias.—Anomatheca Cruenta.—Star of Bethlehem.—Ornithogalum.—Oxalis.—Ranunculus.—Hyacinths: their beauty: Cultivation in water; glasses; vases; in pots; in moss; in sand.—Select List.—After Treatment.—Blooming.—Miniature Hyacinths.—Polyanthus Narcissus.—Lachenalia Tricolor.—Scillas.—Liliums.—Gladioli.

IN England, we but poorly appreciate this family, but, thanks to our enterprising importers, its cultivation is now on the increase. Flowers of the early spring are of all flowers the most prized; the reason for this is not difficult to find. We take such delight in the simple Primrose, the modest Snowdrop, or their more showy companions, the Crocus and the Hyacinth, not because they are equal to their more gorgeous sisters of summer, but that we look upon them as the harbingers of spring; and as the source of all (or nearly all) our out-door pleasures during the dreary winter. To our readers we need not waste time in expatiating on their

uses. They are, considering our circumstances, absolute necessities.

Buying Bulbs.

There are several very useful catalogues* published, so that it may seem superfluous to give advice upon this point. Let us, however, say : Buy early,—first come, first served. Choose sound, well-shaped bulbs, not vegetated too much ; those of a middle size are more to be depended on than the tempting large ones. Choose rather to buy of some respectable and well-known dealer, who has a reputation to lose, than to buy cheap. Cheap bulbs are too often dear. Unless you consider yourself to be a competent judge, never buy at an auction. Unfortunately, our neighbours the Dutch have found out we are apt to snatch at a bargain, and therefore consign their surplus stock (after selling at home the superior portion) to the auctioneer here, who generally succeeds in disposing of these inferior bulbs, at the same price you might obtain the best at from the Seedsmen.

* One of the best of these is published annually by Messrs. Barr and Sugden, Seedsmen, 12, King Street, Covent Garden, London, to which we are indebted for the designs and engravings illustrating the culture of Bulbs.

Soil.

Fortunately, most varieties will grow in almost any soil. Should you have a choice, equal portions of leaf-mould, decayed manure, sand and loam, are to be preferred. If these ingredients have been laid together for some months, so much the better.

Snowdrops.

What can excel a pot of Snowdrops? If planted in September, eight or ten in a five-inch pot, the top of the bulb being about half an inch under the surface of the soil, they may be expected to bloom in January, and will continue to ornament your stand for a whole month. The bulbs should never be taken out of the pot, except for the necessary purpose of thinning out, and will always be found to bloom better when not disturbed. There are two varieties, single and double; the former is the more chaste and graceful, but the latter makes a greater show. Too great forcing is not advisable, the foliage becoming weak and the bloom small.

Snowflakes.

These pretty little flowers, the Spring Snowflakes, will

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tipped ; Prince Albert, large purple ; Sir W. Scott, large lilac ; large yellow Dutch ; Cloth of Gold ; Cloth of Silver ; Versicolor, striped. Besides these there are others equally deserving of cultivation.

Early Tulips.

These must not be confounded with the ordinary Tulips cultivated as a florist's flower. Few bulbs are better adapted for our purpose—they are perfectly hardy and will thrive under almost all circumstances. The bulbs are best planted in September, and may be placed from five to seven in a pot. A successional bloom may be readily maintained by a judicious selection of varieties. Duc van Thols are the earliest, and will bear any amount of forcing ; indeed, in a bottom heat, we have had them in bloom in December. Closely following are the early single Tulips ; these are larger in size than the Thols. Grostmeester, pure white ; Pottebakker, golden yellow ; Pottebakker Alba, pure white ; La Belle Alliance, bright red ; Duc d' Orange, yellow and orange ; and Canary Bird, beautiful yellow, have been favourites of ours, although it is probable that several of the other varieties are equally well worth cultivating.

The early double Tulips come next, being a little later than the single varieties. Our favourites are, Peony, golden yellow, feathered with crimson; Imperator or Rubrorum, bright scarlet; Tournesol, scarlet margined with yellow; Yellow Rose, bright yellow; La Candeur, pure white; Gloria solis, scarlet, tipped with orange; and Bleu céleste, purple. The double varieties will be found to remain much longer in bloom than the single ones. Both may be grown in moss or sand, but we do not think with such advantage as in soil.

Jonquils.

These are of double and single varieties, very graceful and fragrant. They require a rich soil, and, like Crocuses, bloom better after remaining in their pots one or two seasons. Plant five or seven bulbs in a pot, but do not over force—a warm situation makes a bad bloom.

Jas.

These, if successfully grown, are very handsome. Plant your bulbs in October, five or six in a six inch pot, using light soil, composed of peat and sand—water

sparingly at first. Those we have grown are, *Crocata*, orange; *Maculosa*, pale pink; *Oraluca*, lemon colour, with a dark centre; *Thesus*, lilac shaded; *Titus*, bright yellow, with dark eye, and *Rosea maculata*, rosy lilac.

Anomatheca, *Ornithogalum*, etc.

Anomatheca Cruenta may be planted six in a five inch pot, and covered to the depth of an inch and a half; like the *Crocuses*, we always leave them in the pots for two or three years, as we find them to bloom better. Give all the air possible, when in flower, and a moderate supply of water. Its colour is orange crimson, spotted.

Ornithogalum. These, commonly called *Star of Bethlehem*, bear very beautiful star-shaped blooms, and are best in small pots, with good fibry loam and plenty of drainage. Treat as *Hyacinths*.

Oxalis. These may be cultivated, much the same as the *Crocus*, except that they bloom in the autumn. The foliage is very pretty, and the flowers are, in many varieties, of a rich colour. Water will be required when in bloom, gradually diminishing; and when the leaves have gone quite yellow, remove the pot to a dry, cool shelf, where the frost will not injure.

Ranunculus. We have seen these, planted in pots,

succeed perfectly. We have, however, never been fortunate enough to secure a good bloom, except in the open ground.

Hyacinths.

Few flowers have become more popular, and deservedly so, than this. Its easy culture, its adaptability to the dwelling room, its graceful habit, its fragrance, and its variety of colour, are traits which we can scarcely hope to find equalled in any other favourite. Several modes of cultivation offer themselves, all valuable, according to situation and circumstance.

IN WATER.—For this mode, single varieties are to be preferred. Fill your glass with rain water to about the eighth of an inch from the bowl, and place in it a small piece of charcoal, which has been previously soaked, and which, in consequence of having imbibed moisture, will be sufficiently heavy to sink to the bottom. Then carefully wipe away all moisture which may have been deposited on the glasses in pouring the water in, and carry them to the dark closet, where you propose they shall remain for the first fortnight. Here you may arrange and then place in each the bulb, which must not quite touch the water. We have frequently heard

complaints of mouldy and rotten bulbs, and believe, that in a great measure, it is the moisture accumul-



HYACINTHS IN GLASSES.

ing on the glass which is the cause of the mischief. Last season we had fifty bulbs and not a single failure

in them; and holding the above opinion, we shall certainly be very careful to have the top portions of our glasses perfectly dry. After remaining in the dark closet for nearly a month, they will have thrown out rootlets to a considerable depth, many will indeed have reached the bottom; they may now be placed on the window ledge. After the roots are well developed you may let the water sink nearly half an inch from the bulb. Soaking is to be avoided, neither need the water be changed. A little fresh charcoal will be found a sufficient disinfectant. A light airy situation is best suited to the production of fine blooms. Supports should never be used till absolutely necessary. Great improvement has of late been made in the form of the glass, although the bulbs will succeed equally well in the old fashioned shapes: those figured in Tye's registered, and being broad at the bottom, are less liable to be upset. The triple glass, when occupied with bulbs of various colours, forms a handsome centrepiece. It is well to have a small reserve stock to replace any that fail; these, if more convenient, may be grown in pots, and the earth having been generally removed by washing in tepid water, may be placed in the glasses without checking their growth.

Another invention for the growth of the Hyacinth



NE PLUS ULTRA STUMP VASE.

in water is the Ne Plus Ultra stump vase, manufactured of earthenware, in imitation of fir. Inside this vase, supported by a rim near the top, is a tray, perforated with seven holes of nearly the size of the Hyacinth ; in these are placed the bulbs—thus enabling you to have a number of varieties in a small compass. The directions to be followed are, of course, exactly the same as those given for the culture in the glasses. A little moss, which your seedsman will give you, may be placed round the top of the bulbs—this, in both glasses and vases, will prevent the bulbs from getting very dry ; should you, however, observe any mould on them, it should at once be removed with a silk handkerchief. We are not advocates for supports, excepting when they are indispensable. Tye's support is easily applied.

IN POTS.—This is the favourite method of growing, and may be considered one of the most satisfactory. For exhibition purposes, we have always found deep pots most suited to the requirements ; but, as these would be inapplicable to the stand, regular five-inch pots must be substituted. Put into your pot plenty of drainage, mixed with charcoal, and nearly fill with soil, which should be of a light, rich nature. On this place your bulb, and so press it down, that the crown shall be level with the surface.

Your bulbs, so planted early in October, may with advantage be placed in a cool, dark closet, where, with little water administered, they will soon fill the pots with roots, without which, fine flowers are seldom produced. If you have the convenience for placing your pots out of doors, so much the better, for they will succeed more surely there, than in the closet. In this case, the pots should be plunged in a bed of ashes. About the middle of November, they may be removed to the flower stand, or the window sill, and nothing more will be required, than constant, but gentle, watering, and their being kept perfectly free from dust. Like those in glasses, they should be supported only when it is absolutely necessary.

IN MOSS.—The Hyacinth may be effectively cultivated in moss. For this purpose, vessels, either with or without a vent for drainage, may be used. In this pot, place a handful of charcoal, and fill with clean moss, in which, plant your bulbs. Water will be required about twice or three times a week, which must be sprinkled over, not poured on, and it must be of the same temperature as the room. ^{*} Our illustration shews a very pretty group of spring flowers, the arrangement and beauty of which speak for themselves. We have not the space, or we might dwell long on the prettiest

mode of arrangement ; a glance at the engraving and a little forethought, cannot, however, but be the means of leading to a pleasing result.

IN SAND.—Large bowls may be filled with silver sand, and planted with Hyacinths, Crocuses, and other bulbs. These, being kept constantly moist, will grow and bloom freely. After planting, it will be necessary to soak the whole, otherwise, the sand will never get uniformly moistened. After the bulbs have started, they will be benefited and improved by having a little moss strewn over the surface.

List of Varieties. The Royal Horticultural Society have this year published the following list, which embraces the best twenty-four, suited for cultivation, in pots or glasses. Those marked * are double. Argus, bright blue, with clear white centre, very distinct, fine long spike ; Baron von Tuyll, dark blue, very long and handsome spike ; Charles Dickens, greyish blue, large bells, and fine closely arranged spike ; Goronne de Celle, azure blue, clear and exquisite colour, very stout and handsome bells, good spike ; Grand Lilas, pale porcelain, splendid bells, and large handsome spike ; General Havelock, beautiful deep purple, almost black, large bells and closely arranged spike, very striking ; *Laurens Koster, rich dark



HYACINTH GLASSES USED AS VASES FOR CUT FLOWERS.

indigo blue, large bells, very close and long spike ; Amy, bright rosy-crimson, close and good spike, very effective ; Cavnac, beautiful pink, with deep rose stripes, exquisite bells, and broad spike ; Gigantea, blush pink, clear, delicate colour, very close and broad spike ; Koh-i-Noor, semi-double, rosy carmine, long and handsome spike, a very effective new variety ; *Lord Wellington, creamy blush, splendid large wax-like bells, and handsome spike ; Macaulay, medium red, striped with dark red, exquisite bells and spike ; Reine des Jacinthes, splendid dark red, good bells, and well arranged spike, very effective ; Sultan's Favourite, blush with rose stripes, very distinct and beautiful, good bells, and well arranged spike ; Solfaterre, reddish copper, with orange centre, beautiful warm colour, which should be in every collection ; Von Schiller, salmon red, large and closely arranged spike, very fine ; Alba maxima, pure white, immense bells and large broad spike ; Grandeur à Merveille, very pale blush, large bells well arranged, splendid spike ; Madame Van der Hoop, purest white, large and exquisite bells, well arranged spike ; *Prince of Waterloo, pure white, large bells, and good close spike ; Queen of the Netherlands, clear white, large bells, and excellent spike ; Seraphine, pale creamy white, large bells, very

long spike, Tubiflora, blush, external part of tube reddish purple, immense bells, close and broad spike very distinct.

To this we would add, as special favourites, *Crown of India, dark blue; *Passetout, handsome, shaded blue; *General Antink, porcelain shaded; Orondates, porcelain blue; *Blocksberg, porcelain; Prince Albert, dark purple; Regules, light porcelain, shaded lilac; *Grootvorst, blush; *Alida Catherina, rose; *Waterloo, deep pink; Mrs. B. Stowe, rosy pink; Robert Steiger, red; *Pyrene, clear white; Don Gratuit, white; *Grande Monarque, white, shaded; Blanchard, fine white; Grande Vainqueur, pure white; La Candeur, white; Mont Blanc, pure white; Snowball, pure white; King of Holland, creamy yellow; *Ophir, true yellow; *Heroine, primrose; Alida Jacobœa, clear pale canary.

After treatment of the bulbs. Some persons have a strange theory, that after the bulbs are once forced, they are worthless. Those grown in water, should be carefully taken out and placed in soil, not doubling the roots up, but spreading them out. Those in pots, may remain in the earth. Just sufficient water must be given, to keep the leaves green, until the natural season for their decay.

Blooming. Sometimes, our flowers have not come up properly, that is, the flower stalk has been so short that the blooms have not had the opportunity of displaying themselves. An easy remedy, should you have any so situated, is to make a sugar-loaf cap out of a piece of paper, leaving an opening in the top; place this over your bulb, and your flower stalk will soon rise. The same result may be attained, by placing the plant under a glass. Should the leaves be backward, wash them carefully with a little warm water, which will greatly facilitate their development.



Miniature Hyacinths. These have, of late years, become very fashionable, and certainly, for the little ones, nothing can be more attractive or instructive. We would always have the love of flowers cultivated in children, and would strongly plead that every child should have some plant, which he might call his own, even though that plant was not left entirely to his care. Still, leaving apart the children, miniature Hyacinths will be well worth attention. They are found in almost all colours, and are quite

equal in beauty and appearance to their larger sisters. They may be cultivated in water, sand, moss, or pots, and the rules we have above laid down are equally applicable.

Polyanthus Harrisus.

These ought to be grown far more abundantly than they are, especially, in the parlour. The soil and *modus operandi* are identical with the recommendations given for the Hyacinth. Several bulbs may be planted in a rather larger sized pot with advantage, while, in moss or water, they will succeed equally well as the Hyacinth.

Tachenalia Tricolor.

This plant, with its beautiful, spotted, lanceolate leaves, requires soil of a dryer nature, and also the water to be administered sparingly, till growth has steadily commenced. The bulbs, which are small, may be planted five or six in a five inch pot. As it, however, is rather impatient of cold, and very sensitive to frost, it will not thrive in every situation.

Scillas.

These are extremely useful small flowers, varying

in colour from deep blue to white. Their cultivation, as to soil, etc., is precisely similar to that of the Hyacinth. The prettiest varieties are *Amona* and *Siberica*.

Tilliums.

We may treat these as *Hyacinths*, except that the pots should be larger, and that the bulbs should be covered an inch deep with soil.

Gladioli.

These may be planted from three to five in a six inch pot, well drained, and in soil of a rather peaty nature. They may be planted in January and February, and should remain plunged in a bed of ashes, and slightly protected, till spring arrives. They should then be watered rather carefully. There are numerous varieties, all forming admirable ornaments for the decoration of the stand, during the autumn months. *Galathée*, fine carnation; *Vesta*, pure white striped; *Berthe Rabourdin*, white, with blotches of carmine, pleased us much this season. The *Gladioli* are capital things, inasmuch as they bloom for a long period.

CHAPTER VIII.

The Pelargonium, Fuchsia, Cineraria.

Pelargoniums.—Soil.—Culture.—Cleanliness.—Watering.—Stirring the Soil.—Repotting.—Aphides: Recipe for their destruction.—Stimulants.—Stopping.—Blooming.—Ripening the Wood.—Cutting down.—Cuttings.—Repotting for Winter.—Spotted Leaves.—Repotting for Blooming.—Winter management.—General rules.—Varieties.—Fuschia. Form of growth pyramidal and stocky.—How to obtain.—Cuttings.—Potting.—Overpotting.—Damping overhead.—Watering.—Old Plants.—Varieties.—Cinerarias.—Growing and buying.—Management.—Varieties.

Pelargonium or Geranium.

Few plants deserve such extensive cultivation as these, whether for their variety, beauty, or easy culture. They are, therefore, peculiarly adapted for our present purpose, and, in the following remarks, we shall endeavour to lay before our readers such practical directions, as will secure a larger measure of success than is generally achieved, as the reward of those anxious to cultivate these favourites. The first, and really the most important item, is the soil in which they are to be grown; the most suitable is the top spit off a meadow,

full of fibre, and well incorporated with some decomposed manure. Before it is used, this should be well chopped over, (not sifted) as we find that the roots delight in working among these pieces, and are capable of holding out much longer than if sifted soil were used. Any stones, however, must be carefully rejected. You may add a little leaf mould, and also a little silver sand,—of this last, say a forty-eight sized potful to each peck. The whole should be well mixed together. This compost will be found adapted for all descriptions of plants, and may be universally used for potting, repotting, and the striking of cuttings. Should this soil, however, not be obtainable, you should endeavour to get your materials to resemble it as closely as possible.

In order that some matters, which, though of minor importance, are quite necessary, should not be overlooked, we shall adopt a calendrical arrangement of our directions, and will, therefore, commence with

January.—At this time the plants should look green and healthy, and, in order to maintain this, it is necessary that they receive careful attention. If dust has accumulated on the leaves, it must be brushed off. Nothing is so conducive to the health and vigour of the plant as being kept perfectly clean; a little air

will also be necessary should the weather permit. Care must always be exercised in watering: if in a warm room, the soil will, of necessity, require this attention oftener than if in a cold one. Whenever it appears dry, it should be watered, filling up the pots, and not, as we have often observed, merely damping the surface of the mould. Another common error fallen into by the inexperienced, is the use of saucers: we will not condemn them, excepting so far, as they cause the frequent allowing of water which has run through the mould to remain in them. Nothing is more injurious to the Geranium than this, and we would advise those who have adopted the plan at once to discontinue it, and to see that the saucers be emptied immediately. Soft or rain water should be used, and at this time of the year should be first brought to the same temperature as that in which the plants are growing. Frost must be effectually excluded; one night, even, will effect considerable damage. Decayed and yellow leaves should at all times be removed as soon as observed. Occasionally stir the surface of the mould, being careful that you do not go too deep; this admits air to the roots and has a surprising effect upon plants in general, either in or out of doors. *February*.—The plants are

now beginning to make rapid growth, still, do not force them, but allow them to come on gradually. If any are not in the required sized pots, shift towards the end of the month, using the mould already described, and placing some broken pots, commonly called crocks, at the bottom ; they may be from a quarter to half an inch in thickness, and will cause a good drainage, which is highly necessary for the well being of all plants. In potting do not disturb the roots more than you can help, as it will check them. Greenfly is one of the greatest difficulties the Parlour Gardener has to contend with. Fumigating with tobacco is not always convenient, and brushing them off is tedious. We have found the following the most effectual remedy :— Take a quarter of a pound of tobacco, to which add two quarts of hot water, let this stand in a pan or pail for a day and night ; at the same time get one pound of soft soap, mix well with hot water and let it remain till the following day, then strain the tobacco water through a piece of muslin, squeezing the tobacco to get out all the strength. To this, then add the soft soap and about four and a half gallons of soft water— mix the whole well together in a large pan or tub, and it will then be ready for use. The plant which is infested may be then immersed in the liquid, with its

head downwards, being careful that the mould does not leave the pot, which may be prevented by placing the fingers across. The liquid will keep for a length of time, and may be used with perfect safety. A little increase of temperature, if convenient, will be beneficial to the growth of the plants towards the end of the month. *March*.—The plants will by this time be pushing up their bloom in the hearts of the shoots, and a little stimulant is necessary. One which is easily procured, and answers admirably, is soot as pure as it can be obtained—mix it with water, say six gallons of water to a thirty-two sized pot full of soot—then allow this mixture to remain for a few days, that it may lose the heating nature it possesses, and during this time keep it occasionally stirred. After two or three times watering, a wonderful effect will be observed. It may be beneficially used twice a week. If a few late blooming plants are required, pinch out the tops of some of the least handsome. After this, they will grow more in form, and serve well for the purpose required. *April*.—An occasional (say twice a week in the evening) damping over head will assist the plants very much. When throwing up their trusses of bloom they will require more water, most likely once and sometimes twice a day. If the shoots are growing too

close together, put a few sticks to them, and tie them out ; this will admit light and air, and will strengthen the plants. *May*.—The early kinds will be in bloom by the beginning of this month, under ordinary treatment. Do not expose them to the full sun, nor allow bees to have means of access. Flowers hanging loosely about should be tied up. The plants when in bloom will not require soot water. *June*.—Plants which are in full flower keep cool and shaded, and exclude bees. Water twice a day. *July*.—Some will now be going out of flower, and these should be placed out of doors for a week or so, exposed to the full sun, in order to ripen the wood, ready for cutting down. Do not give much water. Towards the end of the month these plants may be cut down—leaving about five or six eyes to break from. Do not allow them to be exposed to heavy rains. If cuttings are required they may be put in at the time of cutting down. Cut them off clean, just under the joint of the leaf—leaving about two or three eyes above, and put them round a small pot, firmly pressing in with the fingers—water well to settle the mould, and put them in a close place. In three or four weeks they will be rooted and ready to pot off. *August*.—The plants cut down in July will now be far enough advanced to allow of their being

shaken out and re-potted. Most of the old mould may be knocked off, and the plants put into pots the next *smaller* size to that previously occupied. Just damp them over head for a few days. They will soon recover the shift, when they may receive all the air they can possibly have. Be careful in watering, and have them somewhere under cover, otherwise the leaves will, in all probability, become spotted, and will have an unsightly appearance during the winter. *September*.—The plants should be growing nicely, but do not push too fast. By the middle of the month get them in doors, or the cold nights will injure them. Be careful in watering. *October*.—In the early part of this month, those most forward may be potted into blooming pots. For this use the compost previously mentioned, and provide efficient drainage. Keep close for a few days and gradually harden them off. *November*.—This is a quiet month, but the plants, nevertheless, require constant attention. The weather is usually cold and dull with fogs. This will have a great effect on the plants. Do not allow a drop of water to go on the foliage or you will lose it, also keep the root moderately dry. *December*.—This also is a quiet month, until after the turn of the day, when the plants will make a push, and will soon require more care. Now stir the surface of the soil occasionally.

General Rules. Always maintain a clean and tidy appearance in each plant. Never put a plant in a dirty, unwashed flower-pot, or use a size larger than is necessary. Water the plants in the evening in summer, and in the morning in winter. If only a few plants are grown, let them be good ones, and never overcrowd them, or they will grow up weakly and flower but little.

Varieties. A few good and free flowering varieties of easy culture. Fair Ellen, white, with cherry coloured blotch ; Eliza, orange scarlet ; Eclipse, very large, deep rose ; Lord Clyde, splendid rich scarlet ; Leviathan, large purple ; Lucifer, rosy scarlet ; Miss Foster, rosy crimson ; Madame Limichez, white, with deep spots on all the petals ; Ruby, rosy purple ; Rose Celestial, soft rose ; Rose leaf, bright rose ; Sir C. Campbell, orange red ; Sanspareil, delicate bright rose ; the Bride, white, with carmine rose blotch, fine ; Viola, pale lilac ; *Fancies.* Acme, deep purple ; Delicatum, white ; Cassandra, rose ; Celestial, bright rose ; Madame Rougiere, crimson purple ; Queen of Roses, rose and lilac.

The Fuchsia.

One of the most charming and easily managed of

plants, and invaluable, because so well adapted for house culture. Originally a native of Chili, and introduced into England about 1790. At that time insignificant, thanks to our enterprising hybridists, we have now a number of varieties, varying in form and colour. They are capable of being grown into almost any required shape, the most usual are stocky and pyramidal. The latter, in our opinion, are far the most graceful, and are the production of a single stem, which should be encouraged until it has reached the height of eighteen inches. The top should then be pinched out, which will induce the growth of side shoots. These in their turn should again be stopped, when they have attained two eyes. After this, they may almost be left to themselves, for, with only ordinary care, they will form most beautiful specimens.

The best time to take cuttings, to have the plants in bloom early, is September and October. Grow them very gently till Christmas, when they may be re-potted, and allowed to progress, stopping them, as directed. When stocky, dwarf, bushy plants are required, they should be stopped, when only about two or three inches high, and afterwards, twice stopped, at suitable intervals, during their growth. The cultivation is very simple and the management easy. The cuttings are

best if planted in a soil rather sandy. After they are struck, (in potting) use soil of a richer nature. As soon as the plants are potted off from the cutting pot, you must decide upon the shape you desire to produce, and stop accordingly. Keep them warm and moist for a few days, to induce them to start vigorously, after which they may be allowed to grow as they please, giving them a moderate supply of water, and maintaining a medium temperature of from 45 to 50 degrees. When the pots become full of roots, place the plants in the next size larger. We cannot too strongly deprecate over-potting, that is, using pots larger than necessary. It should always be your aim to grow in as small a size as possible. Amateurs generally fall into the error of using pots which the roots of the plants can never fill, because they fancy that it saves trouble. A pot one size larger than that previously occupied, is all that is requisite for any subject, however fast its growth. After the month of February, the plants will be benefited by being damped over head, once or twice a week, according to the state of the atmosphere. The effect of this will be quickly perceived. Water will be required during the winter, to keep them growing, measuring the quantity with their growth and the lengthening days. In summer they will frequently

require it twice during the day. A little shade and abundance of air should be given, be careful also to place sticks to the most important shoots. When in full growth, as soon as the pots are nearly full of roots, a little stimulant will be very useful. That recommended for the Pelargonium, will be equally adapted to the Fuchsia. Should you wish to keep the plant more than one season, it may be put away about October, in some dry place, and a little water be given occasionally, during the winter. It may again be brought out in February, or March, and after being trimmed up, will make a useful plant. If you have convenience, you might place these out in the open air. We would however, recommend the culture of young specimens. They are much more graceful, are smaller, and, at the same time, bloom more profusely. The following varieties are given on account of their peculiar adaptability to indoor culture. Queen of Hanover, white tube and sepals, carmine corolla ; Her Majesty, a beautiful variety, white tube and sepals, rosy violet corolla ; Black Prince, fine crimson sepals, deep violet purple corolla ; Prince Alfred, tube and sepals blush, with rose stripes, corolla deep plum ; Sir Colin Campbell, crimson tube and sepals, fine dark double purple corolla ; Madame Corneliessin, fine double white corolla,

tube and sepals crimson ; Duchess of Lancaster, white tube and sepals, rosy violet corolla. All these are distinct ; we might multiply our list to confuse our readers. The only two at all similar, are Her Majesty and the Duchess of Lancaster.

The Cineraria.

We wish that these beautiful plants were more easy of management in the flower-stand. The common and great objection is their being subject to both green and black aphides, during the earlier stages of their growth. These in a dwelling room are so difficult to destroy, that we would discard almost altogether their culture. Still, such beautiful objects for decoration, must be secured, if possible, especially as they may be made to bloom when few other flowers are in season. We would, therefore, advise, not to grow from small plants, but to purchase at a nursery, after they have thrown up their flower stalks. Seedling and named varieties, many of which are very beautiful, and of colours difficult to find equalled in other families, are obtainable for a small sum. Our directions will apply to these, which being purchased in October, or November, will be in bloom soon after Christmas, and continue gay for a

considerable period. They will be found to be fond of water, but great care should be taken, not to allow this to touch the foliage during dull damp days, for the leaves being tender, are liable to decay and fog off; should you detect green-fly on your specimens, it must be at once destroyed, and this we believe to be best accomplished in the same way as recommended for the Pelargonium; true the leaves for a few days may look discoloured, but they will soon regain their healthy appearance, and be, in fact, more healthy than they were previously. The plants delight in a moderately shady place, and abundance of air, but caution must be exercised, for a cold draught will be found to cripple the leaves; this once the case, they never can recover their former beauty. Our directions may, therefore, be briefly summed up—Keep your plants clean, and tolerably well supplied with air and water. As young plants succeed best, when the old ones go out of bloom, they are not worth any trouble, and may be destroyed, and others purchased in the autumn. A few named varieties, all to be had cheaply, are, Brilliant, deep crimson self; Captain Schrieber, bright azure blue self, early; Duchess of Sutherland, white, with wiry lilac margin; Lady Seymour, deep blue, with a white ring round the disc; Mrs. Livingstone, purple crimson, with

a white ring round a dark disc ; Masterpiece, bright rosy tips, on a fine white ground, good habit, and a very free bloomer ; Perfection, pure white, with crimson edge, fine shape and habit ; Queen Victoria, rosy crimson, with white ring and disc, good habit. We believe, in every case, the price of these does not exceed a shilling.

CHAPTER IX.

The Chrysanthemum.

The Chrysanthemum.—Its history.—Cultivation out of doors.—Select lists.—Short Plants for the Window.—To grow a specimen.—Pyramidal specimens.

“THIS was generally allowed to be the most splendid one of flowering plants in one mass, that had ever been seen, and superior to any other garden exhibition, at even the gayest season of the year.” Such was Mr. Sabine’s opinion of the first Chrysanthemum exhibition ever held in England,—and it is to his indefatigable labour in the production of papers read before the Horticultural Society, to that Society’s instrumentality in introducing new varieties, and to Mr. Broome’s perseverance in the garden at the Temple, that we owe much of our advancement in the perfection of this favourite. In 1808, there were but nine or ten varieties, in 1821, when Mr. Sabine (who was then the secretary of the Horticultural Society) read his first paper, the number had increased to fourteen

and three years after, in another paper, he enumerates twenty-four. To judge from the drawings taken at the time, and published in the *Transactions*, considerable improvement had already taken place; still, the best is much behind the many and numerous seedlings which we have since imported from France and Guernsey, and still more behind the varieties which have only during the last four or five years been raised by our own growers.

In Pekin considerable attention is devoted to the Chrysanthemum; all the care, however, is directed to the development of the terminal shoot, and as others on the sides make their appearance, they are at once taken off. Thus treated, the plant reaches a considerable height, and ends in its forming at the summit several buds. Only one of these is allowed to remain, and naturally (or unnaturally) receiving all the nourishment, is brought to an extremely perfect state of development. Every year there are exhibitions, to which the inhabitants send their specimens, and prizes are decreed to the tallest plants and the finest blooms.

Its adaptability to circumstances and situations in which other plants would scarcely survive, renders its cultivation most desirable. We have seen it occupy positions in yards, in the centre of large towns, where

the atmosphere is seldom clear from smoke ; and here, in a large pot, a tub, or in the open ground, it has attained a handsome appearance, being completely covered with bloom. As a parlour favourite, also, it has considerable claims. Three plants of the Pompone varieties were grown by us last season in the open air, and were removed into the stand in November. They did not lose their beauty till after Christmas, and were handsome ornaments at a time when few others were obtainable.

The Templars are noted for their Chrysanthemums. Mr. Samuel Broome, F.R.H.S., their curator, after upwards of thirty years of labour and diligence, has well earned the reputation he has acquired ; and we believe that, at present, he has over three hundred and fifty varieties under his care. The following directions for amateurs, embracing both its cultivation in the open air and as subjects for window decoration, are founded on the practice of Mr. Broome in the Temple Gardens, and are furnished by him for our pages.

Border Treatment.

Amateurs having small gardens, and wishing to keep up a succession of flowers to December, will find a

few Chrysanthemums blooming during the last and most dreary months of the year very acceptable ; they likewise form a very good back-ground of green foliage in borders, through the summer, not interfering in any way with the bedding plants, and, if neatly tied or nailed up, they will hide a dirty or unsightly wall, and bloom earlier and much finer than those planted in the border, especially if disbudded and a portion of the side shoots taken off.

For growing large varieties in confined places, where scarcely any other plant will flourish and bloom, and in back yards or shady localities, trench up the ground in winter, eighteen inches deep, incorporate among the earth, a little rotten dung and leaf mould, if you can obtain it. See that the drainage is good, and that the soil is not too close and stiff. If this be so, a little road-scraping is an excellent application. Select good strong suckers, the first week in May, taken from the old plants, put them in separately, and water for three weeks, till they are well established ; when a foot in height, tie them up to short sticks, and continue to secure them, till blooming time.

The plant being of a succulent nature, requires a great quantity of fluid nourishment. Manure water should be used at least twice a week, and oftener if pos-

sible, until the flower buds begin to show their respective colours. Should it be desired to show large flowers, remove all but three or four of the strongest of the lateral shoots, and allow each shoot to develope but one bloom.

If great care be not taken, the crown buds are apt to snap off. The operation should be performed, therefore, with a light steady hand and a small penknife, or fine sharp pointed scissors.

These cultural notes will equally apply to the growth of large varieties in pots.

The following early varieties, are best suited for confined places.—*Yellow* :—Chevalier Dumage ; Golden Queen ; Annie Salter ; Delight ; Jardin des Plantes ; Golden Hermine. *White* :—Vesta ; Lucidum ; Globe White. *Red and Crimson* :—Prince Albert ; Jewess ; Comte de Rantzau ; Madame Poggi. *White and Yellow* :—Formosum ; Jenny Lind. *Orange and Brown* :—Cassy ; Incomparable ; Cardinal ; Lysias ; Queen of Gipsies. *Rose and Pink* :—Gem ; Cassandra ; Queen of England ; Webb's Queen ; Lady Harding ; Hermine ; Princess Marie ; Alfred Salter ; De Crequi.

The following are a few good show flowers, to grow against walls, or in warm sunny borders.—*Yellow* .—Jardin des Plantes ; Plutus ; Raymond. *White* :—Mrs.

W. Holborn ; White Globe ; Vesta ; Novelty ; Goliath. *Rose* :—Nonpareil ; Themis ; Marshall ; Duroc ; Aimée Ferrière. *Red* :—General Harding ; Pio Nono ; Nil Desperandum. *Blush* :—Queen of England ; Hermine. *Orange* ;—Dupont de l'Eure ; Anaxo. *Carminé* :—Stellaris Globosa. *Violet Crimson* :—Alarm.

There are many new varieties out, but not having tried them I cannot say what they will be. There are, however, sufficient in the above list to satisfy the requirements of any beginner. A temporary covering put over them in the middle of October, will preserve the flowers till nearly Christmas, and cause them to bloom half as large again as those exposed to the cold frosty nights. A little liquid manure three times a week will much improve the bloom, if applied to the plant as soon as it is disbudded, up to its showing the colour.

The Pompones for borders, may be planted in May, or as late as August. The best way to keep them short and bushy is by taking off the leading shoots up to the last week in August, but not later. Divide the suckers from the old root, or strike cuttings in April and May, either will do.

The following are very good and sure bloomers :—General Canrobert, yellow ; Gerbe d'Or, yellow ; Cedo Nulli, yellow ; La Vogue, yellow ; Drin Drin, yellow ;

Sacramento, yellow ; Berrol, yellow ; Aurore Boreale, orange ; Cedo Nulli, white rose ; Argentine, white ; Modèle, white ; Adonis, rose ; Helene, rose ; Salamon, rose ; Drufflet, rose ; La Liliputienne, red ; Dr. Bois Duval, red ; Saint Thais, reddish brown ; Mustapha, reddish brown ; Bob, brown ; Brilliant, scarlet ; Daphnis, carmine ; Aurore Boreale, orange ; Florence, purple.

Short Bushy Plants for Window Decoration

may be secured by taking off cuttings about four inches long in the last week of July. Plant these in a compost of equal quantities of light sand and loam ; place them in the shade, either in the border about three inches apart, or in pots in which eight or ten cuttings may be placed ; here they will speedily take root. Should you have the convenience of a frame, so much the better ; and shade them for a fortnight. Water must be given when the plants require. In about a month put them into thumb pots and take out the top or leading shoot ; this will cause them to throw out seven or eight laterals. Keep them shaded for a short time after potting, and water rather sparingly once every day. Let your compost be good loam, well decomposed manure, and leaf mould, to which may be added a little sand. When the

roots reach the sides, repot into five-inch pots, which is a very useful size for the flower stand. Water about thrice a week with weak liquid manure, but do not give this till the plant is well rooted. In all cases, when the plants have done blooming, cut off the flower stems close to the earth. If in pots, place them in a sheltered position, where they will not be subjected to a severe frost. If in borders, cover over lightly with dry ashes, leaf mould, sawdust, or a little litter, till the frosts are nearly over. Look after slugs, which will soon eat out the leading shoot, and thus cause the plant to flower much later in the autumn, and in large varieties would tend to deteriorate the bloom.

To Grow a Specimen,

Take off cuttings at as early a stage as possible. These should be short jointed ; remove the leaves and eyes from that portion inserted in the soil. In planting the cuttings, press moderately firm, and give a little water. When started, the plants may be repotted, and when they have attained six or eight joints the top should be pinched out to induce the growth of lateral shoots. In February they may be shifted into four-inch size. In March or April again give a little more pot-room.

You must now select six or seven of such shoots as will form the groundwork of a good specimen, and remove all the others, leaving a clear space of three inches between the soil and the bottom branch. In May, the plants may be placed in six-inch pots, and the laterals be bent carefully and gradually down, until they nearly reach the edge, taking great care, otherwise they are very liable to split off. In this position, they may be secured by pegs or by pieces of copper wire. They may now be plunged in a sheltered position in the garden. In June or July the plants should be put in their blooming pots, stopping the shoots twice, and pegging down or tying out, so as to form a good shape—for this is almost the last time you can bend your shoots as you please. Give manure water freely all the season, and the plants may be watered overhead morning and evening. In August again stop—but this time, have due regard to the shape. The longer shoots may be stopped back short, and the weaker ones left considerably longer, taking care to fill up any vacant parts. Shading from the mid-day sun will be found almost necessary. September is the month of growth; and even, should your specimen be of a bad shape, so vigorous is the Chrysanthemum at this period, it may be greatly improved. See that the outside of your specimen is as equal in growth as possible, training,

pegging, and tying out, as required. In October, your plants should be put into a room or green-house, and be kept near the glass, where however, they should receive abundance of air ; liquid manure may also be applied. The six best varieties for growing as specimens are : General Canrobert, Bob, Celene, Florence, Cedo Nulli, Saint Thais.

PYRAMIDAL SPECIMENS are now much grown, and if well done are extremely handsome. They are formed by retaining the centre shoot intact, tying it up as straight as possible. The crown should be taken out of the lateral or side shoots, twice or thrice during the season. The best six varieties for pyramids are, I believe, Drin Drin, Golden Cedo Nulli, Cedo Nulli, Bob, Mustapha.

The directions given for the growth of specimens may be extended to the large flowered varieties. In all modes, use an abundance of drainage. Broken crocks, oyster shells and charcoal are excellent material.

CHAPTER X.

Miscellaneous Subjects.

CAMELLIAS. These are natives of Japan, and yet, if you were to visit that country, we doubt if you would easily recognize your favourite, which is oftentimes subjected to rather harsh treatment, in order to make it grow sufficiently straight, for the purpose of being cut down and converted into broom handles. We should advise your having one or more, for each stand, especially if you have the means of placing them out of doors, in a nice shady situation, after their bloom is over, and their new wood formed. In buying, choose those of a medium height, the buds of which have attained about half their size, and you should inform the nurseryman, that its future position would be your window, so that he might not sell a plant which had been subjected to fire heat, otherwise the sudden change would be very likely to cause the whole of the buds to drop off, without their having expanded. If the buds are in clusters, they will require thinning. With a sharp knife, cut off horizontally the upper half of those buds which you do not wish to pre-

serve, shaking and touching the plant as little as possible. The remaining half will very soon drop off, without occasioning the fall of the entire buds. Do not over water in winter, but give all the sun possible. Washing the leaves or sprinkling the plant all over, will be conducive to its health; this may be accomplished either with a sponge or by drawing your hand up a stiff wet clothes brush, which will emit a shower of small particles of water. After blooming, they should remain in the stand for about a month, and should then be placed out of doors, as previously recommended, standing the pots either on ashes or a piece of slate. They should again be brought in before heavy rains commence. Those we have grown, are the Double White; Fimbriata, white; Marchioness of Exeter, pale rose; and Donkleri, red and white.

AZALEAS. These delight in a mixture of peat, loam, and sand. The plants require general attention, keeping them very clean. When in bloom, a little extra water should be given, and immediately the flowers fade, they should be carefully picked off. The plants after blooming, may be re-potted, and all rambling shoots shortened, in doing this, endeavour to preserve as even a surface as possible. Continue to keep them in the house, for about five weeks, after which they may be set out, as described for the Camellias. The shoots which are taken off, if placed in lighter soil, and kept shaded under a bell-glass, will speedily strike root. Varieties

we have grown, are *Alba Magna*, large, clear white ; *Criterion*, large, light salmon, spotted ; *Delicata*, fine rose ; *Iveryana*, white striped ; *Rosy Circle*, and *Variegata*, salmon variegated.

ACACIA. So numerous are the varieties catalogued, and so similar are they, that we are apt to be confounded. *Armata* and *Grandis*, are both evergreen, and bear globular fluffy flowers, contrasting beautifully with the leaves. *A. lopantha* is very beautiful, and fern-like in its foliage, stands in a room well, and although the bloom is rather inferior, and the shoots are inclined to be leggy, it will be found a desirable addition. The best soil is sandy peat, and you should do your best to induce as free growth as possible, for much of your next year's bloom depends on the wood made this season. Place them out of doors after blooming, bringing them in about August or September ; do not let them remain in the sun, where all the roots will be burnt up, but give them a tolerable supply of water, and you cannot do better than plunge the pots in a bed of ashes.

OLEANDER (*Nereum*). Almost too large for ordinary stands, but very attractive. The best soil is loam and peat. Cuttings strike freely in water or in soil, and when fairly started, may be cut back. When shoots are formed and are six or eight inches in length, these in their turn may also be cut back ; the result will be handsome bushy plants. Like the *Crassula*, they flower on last year's wood, and must either be grown in dupli-

cate, or else those shoots which have bloomed must be pruned down, and the others be allowed to remain. We prefer to have two plants, and cut rather close, immediately the flowering is over. The great cause of the buds not opening, is, sudden change of temperature or the influence of draughts. The plants may be set out of doors after they have formed their growth.

DAPHNE ODORA AND INDICA. The perfume of these is quite sufficient to merit their cultivation. The soil best suited is loam and peat. After blooming, they may be pruned, and having formed their growth, may be placed out of doors with the Camellias.

MYRTLES. Too well known to require description. The directions for treatment of such plants as the Camellia, are equally adapted to the Myrtle. They may be readily propagated by cuttings formed of half hardened wood, and should find a place in every stand.

HYDRANGEAS. For these, the best soil is good loam and rotten manure. The plants you see frequently exhibited for sale with a single head of bloom, are the production of cuttings taken off after the bud was formed and struck under a hand-glass. If you buy one in this state, give but little water when the leaves begin to change ; prune it down rather closely. The following Spring, rub off every bud but those which grow in such places as to afterwards form a good shape ; water freely, and repot immediately the roots reach the sides of the pot. *Keep your plants as near the glass as possible, and when*

the bloom buds shew, give a little stimulant. After blooming, they may again be pruned back ; and, should they become too large, may either be divided, or cuttings taken and new plants formed. There is a variegated variety useful for its foliage, but the bloom of which is insignificant.

FIGUS ELASTICA. We should not have enumerated this, but some few years since we possessed a very nice but small specimen, which on our removal, we were compelled to leave behind. A lady taking a fancy to it, placed it in her window, and here it has remained. When down on a visit this season, we were pleased to see our old friend looking as green and noble as ever, having grown considerably, in a window of a bleak aspect. The Ficus or India-rubber tree, makes a noble single specimen ; grows well in peaty soil ; should be watered but little in winter. The leaves will be greatly improved by being frequently sponged over, and care must be taken that the plant is never subjected to frost.

ERICAS, HEATH, EPACRIS. There are some of the Ericas and also others of the Heath tribe, which we have frequently seen occupying positions in the window. Of course, the cultivation of small plants alone is practicable. Peaty soil, with a little sand and less of loam, is the best ; repot after blooming, and shorten any shoots which have outgrown the others. Always water well when the plants require it, and do not water again until they become nearly dry. Give all the air possible, and keep

them close to the glass. Some varieties of the *Epacris* do remarkably well, as does also the *Diosma*, of which, a white flowered variety, *Ericoides*, is the easiest of cultivation.

ERYTHRINA CRISTA-GALLI. Perhaps, this is more suited for a large passage window, than as an occupant of the stand in the parlour. It frequently will attain a large size, and there are few objects more beautiful than a well grown specimen of the coral plant of Brazil. The best soil is a mixture of peat and loam. The crown will throw out shoots in the spring, which should be thinned, leaving four of the strongest. Give all the air possible. Water moderately, and encourage the growth of the shoots. When the bloom is over, gradually diminish the supply of water, and, as the stems decay, cut them off tolerably close to the crown, placing the pots on a cool dry shelf, and giving only just sufficient water to prevent the earth from turning to dust until Spring again returns. We have seen beautiful specimens grown in the open air, in which case, protection must be given to the roots during the Winter. Some of the new hybrid varieties are said to flower more freely. *Maria Belanger* is described as a great improvement, of much dwarfer habit, forming a comparatively low shrub, with smaller leaves, and long, terminal, densely flowered spikes of bright red crimson, the blossoms forming *in clusters*. *Floribunda* is in habit of growth some-

what similar, but differs in the spike and shade of colour. The *Erythrina*, perhaps, can scarcely be called hard-wooded.

CRASSULA (KOLOSANTHES COCCINEA). This is one of those fine old plants which we rarely see well grown. They may be propagated by cuttings, using a fine light compost ; that recommended for succulent plants will be well adapted. The pots at first occupied need only be quite small. When the plants have attained the height of five or six inches, they may have the tops carefully pinched out, to induce the growth of side shoots. Repot, if they require ; and place in June out of doors, in a shady spot, but not under the drip of trees. Here, they may complete their growth, and being brought in again, before the Autumn rains set in, and kept tolerably dry during the Winter months, they will bloom well the ensuing season. After blooming, they should be again cut down rather close, and they will soon give out side shoots, and become fine specimens, repeating the treatment as before described. We have seen them managed, so that a portion of the plant shall bloom every season. For our own part, however, we prefer to grow two specimens, one of which blooms alternately with the other. *Crassulas* only bear flowers on the shoots of last year's production.

PLUMBAGO CAPENSIS. This plant bears a light blue flower. Sandy fibry loam is the best soil. Stop the shoots, otherwise it grows very straggling ; and in

September, cut back to three or four eyes. Encourage by well watering in Spring and Summer, and give but little during the Winter months. Cuttings will strike freely, and young plants are preferable to old ones.

SWEET SCENTED VERBENA. This is easy of propagation, requiring ordinary soil and treatment. In October, gradually diminish watering, and place with the older Fuchsias on a cool, dry shelf, bringing them out in Spring, increasing the water supplied, and pruning them back. If properly managed, you will get a much prettier plant the second than the first year, and, by taking off shoots, which are always acceptable on account of their odour, it may be readily kept bushy and handsome.

JASMINUM NUDIFLORUM is a remarkably showy subject, bearing an abundance of yellow flowers. Dwarf plants will take but little space, may be had to bloom from December to February, and are very useful for window decoration. When not in bloom, if the frosts are over, let them be placed out of doors. The blooming shoots are those of the previous season, and the plants must be pruned accordingly.

SPIREA PRUNIFOLIA FLORE PLENO is a charming plant, and we have seen it do well in a window. The time of blooming is May,—and the plant is a mass of small white flowers. It is hardy, and requires ordinary treatment.

DEUTZIA GRACILIS is a delightful, fairy-like plant,

with white blossoms and delicate green foliage, taking up but little space. The soil recommended for the *Camellia* will be suitable, and after it has bloomed, the plant may be repotted and placed out of doors. As the flowers of next season are on the young wood, all decayed, blooming stalks may be cut out and a free growth encouraged.

PASSION FLOWER. You should, if possible, possess a *Passion Flower*; it would be found well adapted as an occupant of your window enclosure, or would occupy a trellis. Good soil; pruning back; abundance of water in summer, and little in winter, are the principal items in its cultivation. The most hardy variety is *Cœruleo*; we have also seen *Belotti* and *Sheperdi*.

HELIOTROPES. These, generally, are with us balcony tenants, and are treated like the *Geranium*. *Beauty of Boudoir* is our favourite.

EREOSTEMON. We used to grow these, some of which bloomed profusely; there are several varieties, of which *Buxifolium* is one of the best.

BOUVARDIA. These we have seen, in favourable situations, do extremely well; they would, however, be less suitable for growth in towns. They do best, if planted out in spring, and lifted in autumn, as they are then much less ugly; otherwise, they may receive treatment as described for *Camellias*. The best is *longiflora*.

CORONILLA AND CYTISUS. Both of these produce an abundance of bright yellow flowers, and, blooming early

in the year, are handsome additions to the stand. Soil as described for the Camellia ; prune well and close after the bloom is over, and place out of doors immediately the new wood is formed.

GERANIUMS. These form quite a prominent part in our little establishment. They are best propagated in spring indoors, or strike freely outside in July and August. We always remove a considerable portion of foliage to decrease the evaporation, although this is by no means requisite. Ordinary soil, good drainage, abundance of light, and just to be kept free from frost, are all the attention required, save that in watering too much or too little, will oftentime produce yellow leaves. The plants may be pruned down in autumn or spring ; cutting completely out any branches crossing each other and shortening the others. Some few varieties are kept as indoor tenants, but the majority occupy the boxes outside the window, and the small bed and vases in the little garden. For varieties, we would recommend : Tom Thumb, Little David, Compactum, Attraction, Eclipse, General Pelissier, Trentham Scarlet Gem. *Variegated Leaf* : Alma, Bijou, Flower of the Day, Golden Vase, Golden Chain, Mangle's Silver Variegated. There are also the Ivy-leaved varieties, of which, young plants are best, and should be struck tolerably early in the summer. These will require much the same treatment, and are very attractive and useful for the window.

VERONICA ANDERSONI. This is hardy, or nearly so,

and has bright green leaves, with bluish feathers of bloom ; ordinary treatment required.

ROSE. If you do not already possess plants, we would advise you to apply, early in the spring, to some well-known grower, who will supply you with such as are adapted to your purpose, on your informing him, that you wish them for house culture. The best soil is good loam, and leaf mould. The plants should be kept as close to the glass as possible, and in pruning bear in mind, that two or three robust shoots are worth a hundred weak and stunted. In whatever state or stage of growth, the plants require a considerable amount of air. After blooming, the expended shoots may be cut out, and others, which have grown out of proportion, may be shortened, and the pots may be plunged out of doors. As for watering, give abundance in summer, and but little in winter. The best varieties for indoor culture, are the China, the dwarf miniature, and some few of the Teas, Bourbons, and Perpetual. Young plants of the crimson China, will keep on blooming successionally, and are easily propagated by cuttings. We have taken in October small standards, pruned the top close, trimmed the roots, and potted them, using good loam and leaf mould, and an abundance of drainage. We then plunged the pots in the soil, and allowed them to stand till they commenced growing, when all buds, except those situated for forming a handsome plant, were rubbed off ; the shoots have been cut back as re-

quired, and the plants have been taken up and placed in the stand immediately the buds have shown themselves. So treated, we have found them very handsome.

EVERGREENS. We often wonder why window-gardeners do not adopt these as decorative objects during the winter months. We find nothing more useful. The foliage at this season is at its best, and they are exceedingly ornamental. They should be planted in pots, which must be of sizes in accordance with the roots of the subject, and a soil of loamy texture will be alike suitable for all. A moderate supply of water should be given. As spring advances, and fresh candidates for your favour appear, they may be placed out of doors, protecting them from the sun, and watering, will be all the attention required. As subjects, we would mention: Myrtles, Acubas, Cedars, Lauristinus, Box, variegated Holly, Cypress, Yew, Lignum Vitæ, Palm, etc. Of course, small specimens are most suitable. Some which now occupy the stand, have been in our possession for six years. We have occasionally trimmed them, and have found them to grow the better for it.

CHINESE PRIMROSE OR PRIMULA SINENSIS. The best plants are those raised from seed, a packet of which, if sown in a shallow seed pan or box, in April or May, and a piece of glass placed over, will soon vegetate, and produce an abundant stock. These, as soon as *they are large enough to handle*, should be pricked

out around the sides of a pot, and afterwards separately in small pots. In October, repot into three or four inch sizes, according to the growth of the plant, using a soil composed of equal parts of peat and leaf-mould, adding a little charcoal. In potting, always place your plants a little lower in the soil (very little will do) than they were previously. Keep clear from fogged or decayed leaves, and water carefully; repot as soon as the roots reach the sides; water according to the atmosphere. Keep the plants clean, and they will not fail to bloom profusely. Some may be retarded, if desired, by the removal of all flower buds as soon as they appear. The colours are white and rose. Those of a fringed character are generally most esteemed. Double varieties are readily propagated in light soil by cuttings.

MIMULUS. These plants, known frequently as the Monkey flower, should have plenty of drainage, and soil of a rich though rather rough nature. They emit roots at almost every joint, and may, therefore, be propagated with facility. Cuttings, or rather, pieces with roots attached, are best taken in Autumn, and placed in four-inch pots. Here they may remain till the roots have reached the sides of the pot, when they may receive a shift into six-inch size, pegging down the shoots. We always stop the plants once, that is, pinch out the top shoots. This lessens the necessity of

sticks and tying out. Water may be supplied carefully during the Winter, never allowing them to become too dry. In Spring, this may be considerably increased; the *Mimulus* is a remarkably thirsty subject, and may have an abundance, both at the roots and overhead; nay, so fond are they of moisture that we sometimes are willing to regard it as a species of an aquatic genus, and leave the saucers filled to the brim; but we do this only while the plants are in bloom. After the flowering season is over, the blooming stalks may be cut off, and the plants turned out into the ground, where they may remain, and will afford an abundance of young stock, which you may divide and pot off in the Autumn. Seed may be sown in May. The soil should be fine and well pressed, and the seed simply scattered thinly and then receive another pressing; for if you were to cover it with soil, the chances would be, that instead of vegetating, it would merely rot. A piece of glass may be placed over the pot, which should be wiped frequently. When water is required, it will be little, and must only be given in homœopathic doses. We always use our wet clothes brush, giving a gentle shower, and so obviate all danger of washing the seedlings out of the soil. Prick out into small pots immediately they are large enough to handle. A pinch of really good seed will give a considerable variety.

FABUGIUM GRANDE, is one of Mr. Fortune's Chinese

acquisitions; it is evergreen, has leaves resembling in shape the coltsfoot, while its habit is also very similar. The leaves are a bright green, with definite blotches of yellow. Our plant, when procured from the nursery last season, was but small; we grew it in soil of strong fibry peat, loam, and leaf mould; and it was the admiration of everyone who saw it; it now occupies an eight-inch pot, which it has filled with roots. Specimens should be re-potted twice during the year, and may be readily divided; they send up suckers, which may be taken off with roots attached, and if potted, and kept slightly shaded, will soon grow vigorously. It is tolerably hardy, but should be watered sparingly during the winter.

MUSK. We grow this in three ways, in pots, in the hanging baskets, and also in pots to climb up a small trellis. We prefer the last. Good soil, division in spring or October, plenty of water in summer, and but little in winter, are the only directions necessary.

CALLA ÆTHIOPICA. These are remarkably handsome tenants for the window. The best soil is good loam and leaf mould, and an abundance of water is required, especially during their bloom. Its noble foliage tells with great effect in the winter months, when we have nothing of the kind. It seldom requires to be re-potted, but a little of the top soil may be removed and fresh substituted, and grows much stronger and finer if kept to one stem, by rubbing off the offshoots.

DIELYTRIA SPECTABILIS. A very nice specimen may be grown in a seven-inch pot. In October, procure your roots as strong and healthy as possible ; plant in good soil, and do not injure the crowns ; plunge your pots, if possible, in a bed of ashes, and if you can remove to a cool room in November so much the better ; there it may remain a month, and may then be brought into the sitting-room, where it will soon show signs of animation. If your tuber is a strong one, it will throw out more shoots than are necessary, therefore, select, say four of the strongest, and remove the others ; the portions taken off will strike readily out. Do not overwater ; give all the light and air possible ; by this you will induce a strong growth, which is half the beauty of your plant. After blooming, keep indoors till all danger of frost is over, when it may be placed out of doors. The roots may be divided in October, but, if overdone, weak plants will be the result.

CAMPANULA. Propagate by cuttings in spring, and repot in August, using good loam. In October, use less water, and during the winter give all the air possible. In spring, again repot, if required. When the blooming spikes are thrown up, an abundance of water must be administered.

SALVIAS. These will grow too large for your window unless you keep them well down by stopping. Strong, well stopped bushy plants will, however, become very handsome. Those we have grown are

Splendens, scarlet, and Patens, blue. The first is the most tender. Patens does well out of doors, and we grow it like the Chrysanthemum, in pots sunk in the ground, bringing them indoors to bloom. At this moment (October 11th), both are full of bloom of the finest scarlet and blue. Good loam and peat, plenty of drainage, and abundance of water are necessary. Both strike readily from cuttings, but we generally grow the blue variety from seed.

AGERATUMS are easily propagated. Our chief display is in the balcony, and in the little plot in front of the window ; where, being stopped frequently, they become vigorous bushes, covered with bloom.

CYCLAMEN PERSICUM, ALBA AND RUBRUM. These are easy of cultivation. Good sandy loam and leaf mould ; and four-inch sized pots should be used. The bulb should not be covered with soil. They will bloom the first season, but they are better when undisturbed for two or three years. They should be potted rather lightly, and will require, when in bloom, a little water daily. When the leaves begin to turn yellow, the pots should be put out of doors, and just water enough supplied to keep them from drying up. After they are taken indoors in Autumn, and begin to shew signs of life, a little more water will be required. They are easily propagated by seed, which should be sown as soon as ripe in a pot or box, placing over it a piece of glass, and keeping them moist but not wet, and free from frost. In May, repot

singly into small pots, and treat as above. They will, many of them, bloom the following spring.

BALSAMS. In growing these, buy good seed ; Glenney of Fulham sells the best we ever grew. The seed should be sown in April in a small box, in a light but good soil. A piece of glass should be placed over it until the plants are fairly up, which should be wiped carefully whenever moisture accumulates. At night, the box may be placed in a warm position, but during the day should be exposed to the full light of the sun at the window. When the seed leaves emit other two, you must pot them carefully, in small pots, in good compost. As they progress, they must be repotted into four, five, and six-inch pots ; abundance of water will be required, especially in their latter stages. All buds should be removed until the roots have filled the pots. Mr. Glenney's rule is, let them be picked off constantly, until the side branches grow out and show theirs ; then merely pick off the largest buds as they come forward, until all the forwardest buds in the middle stem are the same size as the forwardest on the side stems, when they may be allowed to bloom, and the flowers will come all over the plant, and alike in size. All this time they must be constantly shifted to larger pots as soon as they require it.

VIOLETS. The Neapolitan are, we think, the best. Take off runners in April or May ; plant these out of doors, if possible, or else in a box ; remove all runners, *and keep them growing.* The last week in August,

or before the middle of September, they should be potted, and, being placed indoors, will bloom (according to the heat applied) between December and February.

LILY OF THE VALLEY (*Convallaria majalis*). As many roots as can well be placed in a pot may be planted in October, choosing the finest crowns, and the pot allowed to rest with your Hyacinths, bringing in early in December, but not forcing too much, otherwise the bloom will be greatly deteriorated.

ANTIRRHINUMS. These are a remarkably useful family, especially for the Balcony. The propagation is by cuttings, and the after treatment should be a good soil with abundance of drainage, plenty of water, occasional stopping and removal of flowers; spike immediately they fade.

BEGONIAS. Some of these are well worthy of a place, avoiding such as require more heat than you can give. *B. discolor* is very handsome, if not too large for your stand.

MIGNONETTE may easily be formed into a tree by trimming the plant, tying it out, and not allowing it to bloom, till it has attained the required size. Be careful to remove all seed-pods, and train the young shoots. A Mignonette-tree will live for a number of years. The dwarf plants are easily cultivated; living in the shade, and being less impatient of smoke, they are adapted both for town and country. The bloom may be considerably prolonged by removing the seed-vessels.

MARVEL OF PERU. We have seen delightful specimens of this in the cottage windows. Perhaps, in many cases, it would be best in the balcony. You may buy tubers at a very small cost, or grow your own from seed.

SHRUBBY CALCEOLARIAS. The best time to strike cuttings is July ; when rooted, pot into small size pots ; stop the shoots and train so as to form a nicely shaped specimen. By frequent stopping they will assume almost any shape, and will become handsome objects for the following summer's decoration. Plants which are strong in the stem always turn out the best. Green fly must be carefully kept down, and air should be given freely.

CLIMBING PLANTS. We would refer the reader for the arrangement of these to our next chapter. A few of the most suitable, are, Ivy, many varieties ; one of the prettiest is the Palmate leaved ; Ivy leaved Geraniums, of several tints ; Maurandia Barclayana, either as a climber, or in the hanging basket ; Tropæolum, the best of which would be Canariensis polyphyllum, and Tricolorum, the last is grown from tubers, and should be kept nearly dry in winter ; Clematis, of which there are also several varieties ; Sieboldi is very pretty ; these also should be allowed to rest in winter ; Eccremocarpus longiflora, Ipomeas, Convolvulus and Thunbergia, may all be grown from seed. Mandenillia suaviolens, Sollya Heterophylla.

HANGING PLANTS. We have previously described the

baskets. Those for plants, should be rather deeper than our illustration. Suitable occupants are *Saxafraga sarmentosa*, with its pendent family; *Tradescantia zebrina*; *Disandra prostrata*, resembling the ground Ivy and covered with light yellow blossoms; *Fuchsias*, of a pendent habit, as *Duchess of Lancaster*, would succeed admirably. *Moneywort*, very attractive, when nicely kept; *Lobelias*; *Ivy-leaved Geraniums*; *Ipomea*, the *hederifolia*, *Sedums*, *Mesembryanthemums*, *Campanula* of drooping habit; *Myoporum parviflorum*, blooming well in autumn and spring; *Linaria Cymbalaria*, *Tropæolum Lobbianum*, *Maurandyas*. All these may be readily cultivated, and require ordinary management.

CHAPTER XI.

Plants in Cases.

ALL who have travelled in the North of Europe must have been struck with a peculiarity in the windows of those who can afford the luxury; we allude to the double sashes, which are quite common in Stockholm and St. Petersburg, and may even be seen in Berlin. These are rendered necessary by the extreme cold of Winter, and are used to prevent the condensation of moisture on the inner surface of the glass, which would otherwise be a great inconvenience. Without them, too, it would be difficult, even with the immense stoves in use there, to keep up a sufficient heat in-doors in Winter. The inhabitants of Berlin are especially noted for their love of flowers, and, in the Summer time, one often sees these double windows converted into little greenhouses. The plants grown in them are, for the most part, very different from those we should use for the purpose in this country. The common Ivy, for instance, is a general favourite there. Nevertheless, the idea has often occurred to the writer that something *similar might* be advantageously used in England by

those who are obliged to live in the heart of our crowded city, and, therefore, have little space or opportunity for the cultivation of plants. Within the last few years, something has been done towards simplifying the cultivation of in-door plants; but the experiment is still in its infancy, and it has not yet been popularised to a hundredth part of the extent to which it is capable of being developed. Glass cases upon the principle we have mentioned would much reduce the difficulty of keeping these floral pets in health, and we, therefore, devote a few pages to the subject.

As we said when speaking of the management of Ferns in Wardian cases, the greatest enemies to plants in-doors are the dry air and the dust to which they are exposed. Protect them from these, and their cultivation is much more simple, your success much greater. How is this to be done? it may be asked. Our frontispiece will give a better idea of the best and most efficacious mode of attaining this end than any mere verbal description could do.

The window should be fitted with double sashes, the inner ones being about two feet from the outer, and opening like folding doors into the room. The two sides should also be glazed. At the bottom of the miniature conservatory thus produced, should be a box lined with zinc, supported a few inches above the floor, and fitted with a tap in one corner, for drawing off the

superfluous water which will drain through from watering the plants. This box should be a foot or fourteen inches in depth, with a layer of broken pots, or charcoal at the bottom, and this to be covered with a thick layer of cocoa-nut refuse (or, if this cannot be attained, river sand will suit the purpose, though not so well). In this plunging material the pots are to be sunk up to the rims. Climbers and other plants which remain for some time in the case, will root through into this material, and be benefited by so doing. The surface of this plunging material should be covered with a turf of the common Lycopod (*Selaginella denticulata*). A few sixpenny pots of this would be sufficient to cover the whole space; they should be pulled all to pieces, and each little scrap planted separately, the pieces having their lower ends dibbled in with a little stick. These soon form a dense and bright green turf all over, and would need nothing more than an occasional clipping with a pair of scissors when any part happened to be growing too strong. Should the turf be partially destroyed in re-arranging the plants at any time, all that would be necessary would be to pull a few sprays out, where they are thickest, and with them to replant the spot. We recommend this sort, because it is decidedly the hardiest of the creeping Lycopods. We have often seen it covered with snow, or as a still better proof, exposed to severe frost for several successive days, without being

in the least injured. *Selaginella Braziliensis*, (known also in some nurseries, as *S. densa*, or *S. apoda*) although more moss-like, and smaller in its growth, is not nearly so hardy, and in winter, it often detaches itself from the soil, and becomes yellow and unsightly.

The sides of the windows could easily be decorated with climbers, trained up wires stretched perpendicularly, and across the top. Copper wire should be used for the purpose ; iron wire rusts, and is liable to injure the plants. On one side, we should have a small plant of that universal favourite, the Passion-flower ; *Passiflora cœrulea racemosa* we have found to be one of the best, and to flower most freely. This would go up to the top, and the flowering shoots droop downwards in graceful festoons. On this side, we should also have a plant of the Wax-flower (*Hoya carnosâ*). The lower part of the stem of the Passion-flower would lose its leaves and become in some measure unsightly ; the *Hoya* does not grow large, and would, therefore, fill up the blank. This plant has thick, fleshy leaves, and its clusters of small, waxy, flesh-coloured, deliciously scented flowers are produced in constant succession, and last for so long a time, that the plant is almost always in bloom. So many good qualities render the *Hoya* a great favourite as a window plant, and it may very successfully be grown even without the protection of a case. On the opposite side of the case might be introduced the herbaceous perennial, *Calistegia pubescens*,

with flesh coloured-flowers, and the annual *Ipomœa limbata*, bright purple and white. These two might, in winter, give place to a plant of *Jasminum nudiflorum*, grown out of doors all summer, and trained for the purpose.

We should have three plants suspended from the roof; the centre one to be permanently occupied by a drooping Cactus (*Cereus flagelliformis*), the pendent snake-like shoots of which look well all the year round, and produce abundance of rosy flowers in spring. The baskets on each side would look well, filled with the small, blue-flowered *Lobelia*, the flower-bearing shoots of which would droop down on every side. The newly introduced *Convolvulus mauritanicus*, with delicately blue flowers, would also be an admirable plant for the purpose. Whatever the plant chosen, the two baskets, one on either side, should be filled with the same species.

On each side of the windows we should have a bracket projecting from among the climbers, so as to break the upright straight line. Upon this bracket some plant in flower should be placed, varying with the time of year, and the pot in which it is grown might easily be hidden by another standing in front of it, and filled with the *Tradescantia zebrina*. The pendent shoots of this plant would hang down like a curtain; they are clothed with foliage, which is of a bright crimson colour below, while the upper surface is purplish *with silver stripes*.

The lower part of the window would be kept gay, with whatever plants were in season, the pots being plunged and kept out of sight in the materials before mentioned. The interest of the case, would depend upon the arrangement of these ; it would be a very simple matter to make it always gay, and always presenting some new and beautiful feature. In taking a plant out of the case, give the pot a twist round, before lifting it, and it will leave a space ready for the reception of a pot of the same size. It will, however, often happen, that the colour of the flowers of the plant to be introduced, will not match so well as those of its predecessor in the same place, and a new arrangement of the whole group will be necessary. But even then, the time required to do it, will not be much, and the difficulty not great. The best way would be to arrange them first on the floor before you, so that you could judge of their effect, and then to drop them into their places in the case accordingly. The principal things to aim at, are, to have some conspicuous plant for the centre, to arrange the two sides so that they should balance each other, as it were, and to have a sufficiency of foliage. In winter a very few plants in flower, would cause the group to look gay. At that season a deal depends upon the grouping, and if the colour looks too sombre, it might be much enlivened by a few variegated plants, or those bearing

brightly coloured berries, the white and scarlet fruited *Ardisias* for example.

Where there is not sufficient room inside the window for the introduction of double sashes, upon the plan above described, we have seen a very pleasing effect produced by the addition of an exterior projecting covering of glass, supported by brackets. And this, even when having a bleak and northern aspect, may be made very cheerful and effective at all seasons of the year. In summer, as they would receive but little direct sunshine, flowering plants would remain a long time in bloom ; and in winter hardy Ferns mixed with a few striking Conifers, produce a much more pleasing combination, than would be supposed by those who have not witnessed it. The dark green colour of the common pyramidal Irish Yew, the bright golden tints of the variegated varieties, and the bluish tinge upon the Junipers, contrasting well with the green fronds of most ferns, and the deep green, glossy, and very striking fronds of the Japanese *Cyrtomium falcatum*, a plant which should never be omitted from any collection of hardy Ferns.

All that has hitherto been said has had reference to plants which can be grown without any more artificial heat than that furnished by an ordinary living-room. The variety of plants which might be employed for indoor decoration might be greatly increased could *they be accommodated* with a miniature stove, and,

though this entails a larger amount of expenditure than we presume the readers for whom this little work is intended would wish to lay out upon their hobby ; still, our task would be incomplete unless mention were made of the most simple and inexpensive modes in which this can be accomplished.

There are several modes of providing for the wants of stove plants upon a small scale, the first of which is the Waltonian case, which is manufactured at Winchester, and which may be purchased for about fifty shillings. The peculiarity of its structure is, that there is a shallow r servoir of water below the part where the plants stand or are plunged, and underneath this a small lamp is kept burning, so that almost any required temperature may be kept up both night and day. These cases may be made extremely useful for striking cuttings, by merely filling the bottom of the case with a layer of moist sand. The cuttings need only to be stuck into the sand as thickly as they will go without crowding the foliage too much, and it is astonishing how quickly they will form roots, and if a little care be taken to guard against their damping off, they may be struck without the loss of a single cutting. Seeds, too, if the pots be stood inside the case, germinate much better and more rapidly than without this assistance. These cases are equally valuable for forcing bulbs and other flowering plants in the spring ; they

require no further trouble than plunging the pots (which should be well filled with roots first) in sand or cocoa-nut refuse, which should be kept rather moist. One of the pots should be lifted occasionally, so as to make sure their roots are not too hot. Long before the Waltonian case was brought into public notice, we had employed a rudely constructed case upon the same principle, and found it extremely useful in propagating our young stock. One spring we struck a sufficient number of Verbenas, Geraniums, and other bedding plants, in a case of this kind, which was only four feet long by two in width, to supply a tolerably large flower-garden ; not to mention the Fuchsia cuttings and other things struck for the little conservatory. With such a case as this, it would also be possible to grow the varied and beautiful kinds of Achimenes and Gloxinia ; the Caladiums which are so remarkable for the colours of their foliage, and so many other plants, that it would almost require another volume to describe them. All three of the genera just mentioned, need to be started into growth by a little extra heat in spring, but when in perfection, they remain a much longer time in good condition in a cool place, than they would in a higher temperature ; and during winter the roots of all these may be kept quite dry in a cupboard or any similar place.

More recently a case has been patented, which is *certainly an improvement* upon the "Waltonian," though

it is almost as expensive. The smallest size, (which is about three feet long, by eighteen inches wide, and the same in height) costs two guineas ; Messrs. Pickard and Co., 4, All Saints Place, King's Cross, are the sole manufacturers. The case was invented by Miss Maling, a lady who has done more than any other person to encourage the growth of plants indoors, and who has written a very delightful little work upon the proper way to arrange and grow plants in these cases. These cases are heated by means of a little concealed tank which is once or twice a day filled with boiling water, this retains its heat for some time, and does away with the necessity for a lamp. There are also improvements in the mode of ventilating these cases.

The culture of plants requires observation : it is far better, in beginning, to commence with one or two favourites, and having been successful, to ascend the scale by increasing your number and variety, than at once to possess a numerous family and fail in their management. Carefully note the cause of each failure, and depend upon it, as we said before, those who begin as learners, may end as discoverers.

Let us say one word in conclusion. Plants, like birds and other pets, suffer from the least neglect ; their appearance at once bears witness to the treatment they have received ; but, on the other hand, they cheerfully and gratefully acknowledge the kindness and attention bestowed upon them. The management of your

window plants must be a labour of love, or all our advice will be thrown away. Let it be seen, that a loving hand supplies their every want, and then their happy appearance, and luxuriant growth, the brilliancy and the perfume of their flowers, will be your reward, and a never ending source of the purest pleasure.

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